DOCUMENT RESUME

ED 110 405 SO 008 554

AUTHOR	Leeper, Robert R., Ed.
TITLE	Emerging Moral Dimensions in Society: Implications for Schooling.
INSTITUTION	Association for Supervision and Curriculum Development, Washington, D.C.
SPONS AGENCY	Danforth Foundation, St. Louis, Mo.
PUB DATE	9 Jun 75
NOTE	79p.
AVAILABLE FROM	Association for Supervision and Curriculum Development, 1701 K Street, N.W., Suite 1100, Washington, D.C. 20006 ($3.75)
EDRS PRICE	MF-$0.76 PLUS POSTAGE. HC Not Available from EDRS.
DESCRIPTORS	Communications; Conference Reports; Educational Alternatives; Essays; *Futures (of Society); Government Role; Higher Education; *Moral Development; *School Role; Sciences; Social Sciences; *Values

ABSTRACT

This document presents lectures and dialogues from a two-day colloquium in which experts from academic fields outside of education identified and examined values upon which schooling might and should focus; that is, the identification of moral imperatives. The Association for Supervision and Development (ASCD) lectures were planned in order to ferret out a clearer body of values to give direction to thought for possible reformation of curriculum content. This booklet presents a chapter written by Harold G. Shane and reports the lectures of Jonas Salk, Robert Heilbroner, Willard Wirtz, and William I. Thompson. Some of the many facets of moral education are considered in each of the following essays, with a bearing on schooling and with suggestions for how to examine the future as a guide to present educational decision making and development. Harold G. Shane briefly describes the values education "movement." Jonas Salk draws on his scientific experiences in developing moral human equations. Robert Heilbroner presents a gloomy commentary on the human prospect, and starkly presents some of the excruciating moral dilemmas. Willard Wirtz depicts the implications of moral responsibility in a democracy and for education. William I. Thompson sketches the moral foundations he sees in a new planetary culture, and what they may suggest for educational practice. (Author/JR)

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Implications for Schooling

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Emerging Moral Dimensions In Society: Implications For Schooling

Edited by Robert R. Leeper

Foreword by Geraldine Bagby

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Price: $3.75

Stock Number: 611-75052

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Library of Congress Catalog Card Number: 75-13978
ISBN 0-87120-071-6

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Acknowledgments

Special thanks are extended to The Danforth Foundation for support of the conference which eventuated in the papers presented in this booklet. The Danforth Foundation, created by the late Mr. and Mrs. William H. Danforth in 1927, is a philanthropy concerned with giving aid and encouragement to people primarily through the support of educational programs, projects, and institutions.

Final editing of the manuscript and publication of this booklet were the responsibility of Robert R. Leeper, Associate Director and Editor, ASCD publications. Donald Graul was responsible for initial editing of the tape transcription. Production was handled by Nancy Olson with the assistance of Elsa Angell, Teola T. Jones, and Maureen Montgomery, with Caroline Grills as production manager. Photographs were taken by Geneva Gay.

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Foreword

Public concern about responsible citizenship and about moral and ethical values is becoming increasingly evident. There is little doubt that the latter half of the 70's will give these issues priority status among educational foci. This decade has become heir to earlier upheavals which have shaken not only the national conscience but also national confidence.

Sputnik in the 50's caused a surge of national interest in science and technology. Fear of harm from outside our borders catapulted our technological developments literally to the moon. But if humankind cannot live by bread alone, neither can it live by technology alone.

The Great Society of the 60's mustered the forces and resources of government, primarily its staggering billions of dollars, to alleviate the burdens of the needy and the oppressed. But the latter part of that decade witnessed the greatest demonstrations of citizen restiveness, short of a civil war, that this nation's history has experienced. If bread alone nor technology alone cannot solve the problems of humankind, then neither can government alone, nor money alone.

While far away Korea and Vietnam and Cambodia and Laos were taking our attention, our money, and many of our lives, we seemed to be insensitive to the growing inability of our institutions to perform their traditional functions. In the year of our bicentennial can we dare admit that our greatest fears come not from danger outside our borders—international or interplanetary—but from within our own bodies, within our own hearts, minds, spirit, and will? Can we shore up our own value systems and restore our own confidence in the inherent worth of individuals—in the true meaning of democracy—in liberty and justice for all? Can we look more attentively into the deepest needs of human beings? For what profiteth a man . . . ?

It was not by accident, then, that a two-day colloquium—a "consortium of intelligences"—was planned under joint sponsorship of The Danforth Foundation and the Association for Supervision and

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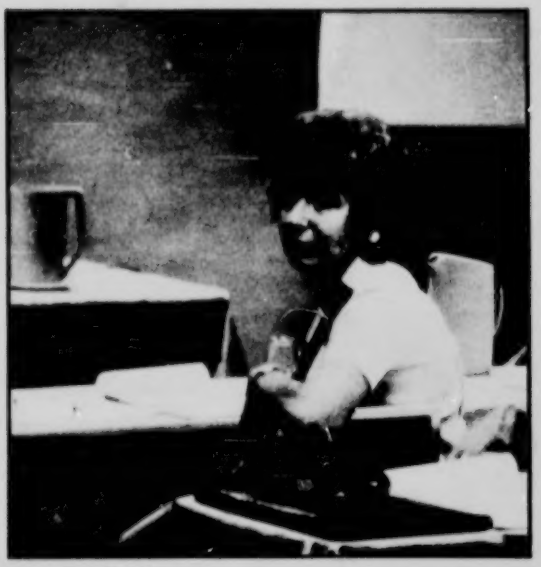

Geraldine Bagby

Curriculum Development. The lectures-dialogues brought together experts in academic fields outside education to identify and examine values on which schooling might/should focus; that is, the identification of moral imperatives.

Throughout its history The Danforth Foundation has been dedicated to enhancing the humane dimensions of life. Many of the projects which the Foundation has supported have related to value issues. The Association for Supervision and Curriculum Development enjoys favorable repute among school personnel, and it has assumed a continuing leadership role in a number of activities pertaining to schools. Because its membership and influence extend into many diverse and representative segments of the total educational structure, its work can have broad impact. It can be an instrument for positive change.

The ASCD lectures-dialogues were planned in order to ferret out a clearer body of values, expressed as premises, to give direction to thought for possible reformation of curriculum content. This booklet reports the lectures of Jonas Salk, Robert Heilbroner, Willard Wirtz, and William I. Thompson as well as a chapter written by Harold G. Shane. Acknowledgment and appreciation are expressed to these

four lecturers; to the several other distinguished persons who engaged in the lively dialogues; to the initiators and organizers of the consultation, Harold G. Shane, Past President of ASCD, and Gordon Cawelti, Executive Director, ASCD; and to Robert R. Leeper, Associate Director, ASCD, for preparing this publication.

June 9, 1975

Geraldine Bagby
Vice President
The Danforth Foundation

The Future Mandates New Moral Directions

Harold G. Shane, *Indiana University*

When I was graduated from the Shorewood, Wisconsin, High School in the 1930's there was little doubt as to what was "moral." In my particular middle American subculture the home, the church, and the school repeatedly reminded me of the difference between "right" and "wrong" conduct. And transgressions usually were followed by an array of penalties ranging from the simple to relatively ingenious forms of psychological warfare.

I can still remember, when I was 14, how mother found my hoard of tobacco: two pipes and a package of Cubeb (no tobacco) "herbal" cigarettes. They were carefully concealed in my old tennis shoes on the garage rafters. The punishment: no desserts for a week—with a special effort on mom's part (psychological warfare!) to provide lemon meringue pie and pecan pie for two evening meals. Need I add that I learned not the "right" and "wrong" of smoking, but to be more artful in my hypocrisy by concealing my next pack of cigarettes more carefully!

In those days many young Americans had a built-in "moral" gyroscope to keep them on course—plus an invisible behavioral chart tatooed on their inner beings. The course one followed led to respect for the established order of life: wash your neck, don't interrupt your elders, be suspicious of foreigners and of persons who attended the "wrong" church, don't discuss "sex" except in the lavatory, and so on.

By and large, schools of 40 or 50 years ago were likely to have a phantom or hidden curriculum of significance for "moral development." This was *not* related to the traditional academic content of instruction. Rather, it was what the school taught by implication with respect to

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the real world—what it transmitted with regard to *whom* and *what* was of worth in American culture. As bureaucracies the schools educated for bureaucracy. The brand of democracy taught was simplistic and ideas often were sloganized rather than examined: "Damn the torpedos, full speed ahead," "Avoid entangling alliances," and the like.

The acceptance of free enterprise generally was encouraged by commencement speakers and textbooks, while creeping socialism was viewed with alarm. Young learners were taught to respect the importance of science and technology, God, the work ethic, and the sacredness of the home and motherhood. Racial minorities frequently were reduced to stereotypes cut from cardboard, a social class hierarchy was taken for granted, and anyone, I was taught, who worked hard and was a good boy could either make a million or become President.

"Folk wisdom" of a moral orientation, not all of it bad by the way, flourished. My grandmother was a reservoir of it. "There's always free cheese in a mousetrap" and "Whitewashing the pump won't purify the water" were two of her moral gems.

In fine, a narrow and often biased interpretation of Western civilization and its unquestioned virtues was in a very real sense the phantom curriculum taught both by example and by precept. Further to complicate the child's "moral development" experiences, a substantial number of teachers—vestals for the American dreams and myths of the 1920's—were persons of little experience, often with a two-year normal school background, carefully controlled by the conduct codes so grimly portrayed by Howard K. Beale in his 1936 classic *Are American Teachers Free?*

Moral Education in Transition

By the late 1960's many of the teachings intended to develop moral character had indeed fallen upon evil times. The admonition that "A woman who will smoke will drink, and a woman who drinks will do other things" was as out-of-date as the Castle Walk, the nickel cigar, and the Stutz Bearcat roadster.

But, as *old* values dimmed and blinked out like 1920 kerosene lamps that had used the last of their fuel, there was no widely accepted body of *new* values to fill the void. As Americans we began to

develop the phenomenon of heightened consciousness, it is true. Women, children, the aged, and a spectrum of minority groups were accepted in new ways in the United States. Programs were developed for the young, for the old, for the flotsam of the culture of poverty. But we carried into the mid-1970's the problems of the value crisis so frequently mentioned by the 82 specialists in futures studies whose concerns I summarized in 1973.[1] To phrase it concisely, millions of U.S. citizens as of 1976 are in disagreement as to what the "good life" is, in what and in whom to believe, and at a loss to define clearly the

[1] Harold G. Shane. *The Educational Significance of the Future.* Bloomington, Indiana: Phi Delta Kappa Educational Foundation, 1973. 125 pp.

Harold G. Shane

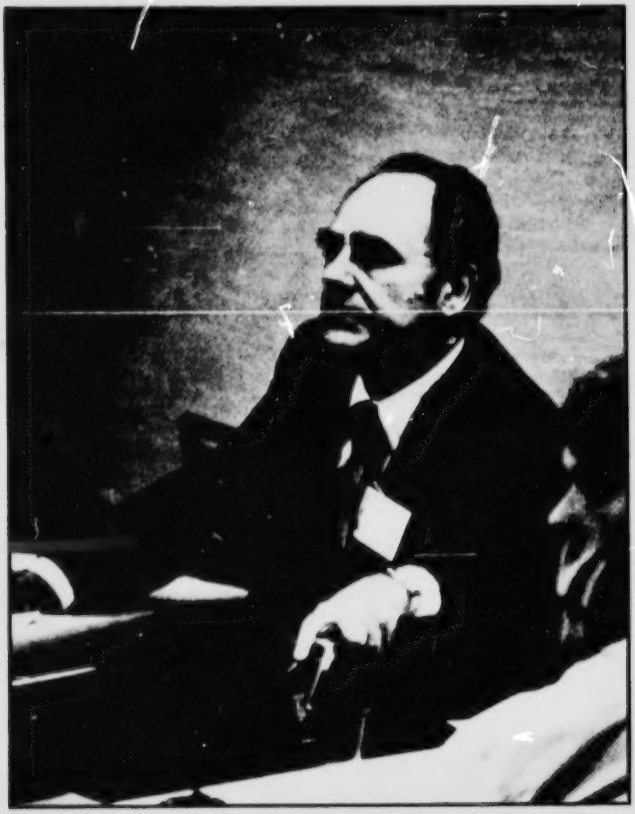

image of the educated man and woman which schooling should seek to produce.

The problem of our conceptual crisis—our inability to identify and agree upon a "best" way of life—has spilled over into the lives of children and youth. As Benjamin Singer pointed out in his essay in *Learning for Tomorrow*,[2] many of our young lack a future-focused role-image—a picture of themselves in 1980 or 1990 or 2000— which they find rewarding enough to motivate them to work toward their futures today.

Our Quickening Interest in Moral Education

By the mid-1970's, and partly as a result of the many forms of turmoil that characterized the 1965-1975 decade, there was increasing interest in moral education; in the rediscovery of purpose in education to serve more adequately a world in the process of a transition that was proving to be almost incredible in its scope and impact. "Moral" as used here is an adjective meant to imply *equity* and *justice* in a world threatened by resource depletion, exponential population increases and hunger, the atomic threat, the tragedy of naively used technology, and the literally breathtaking problems of polluted air, as well as oceans increasingly unfit to provide the harvests of fish upon which millions have depended for centuries.

At least some sources of the malaise, both American and worldwide, can be identified. These are a few of the elements turning our attention to the quest for clearer policies with relevance for moral development.

1. *Frustrations stemming from "permissiveness."* The 1940's were characterized by authoritarian direction. World War II regimented humankind by the millions. Inflation and economic constraints had a comparable influence in the early post-war years—and the millions who entered post-secondary education likewise were subject to the endemic spread of red tape as enrollments zoomed.

As a form of what President Harding in post-World War I days had labeled "normalcy" was restored, many ex-servicemen and their wives seem to have said "The strictures we endured shall not be passed on

[2] Benjamin D. Singer. "The Future-Focused Role-Image." In: Alvin Toffler, editor. *Learning for Tomorrow*. New York: Vintage Books, 1974. pp. 19-32.

to the next generation."[3] Whether or not this subjective inference is correct, the low key, "permissive" era of child-rearing flourished in the 1950's and 1960's. By 1965 its cumulative impact was reflected in the student power movement and the greatest degree of student unrest since, perhaps, the 13th century in Europe's Renaissance-era universities.[4]

A decade after upheavals in major universities first began, the frustrations of permissiveness have begun to turn the attention of persons of all ages to a reappraisal of the "permissiveness" which led many adults to leave the rostrum to the young. At the moment virtually no one is on the rostrum and we are, hopefully, seeking as youths and as adults a way to end the false dichotomy of the so-called generation gap and begin to stand shoulder to shoulder against the common enemies of humankind: hunger, atomic war, and the other *truly* common foes inventoried earlier. To quote 1971 Nobel Prize winning Dennis Gabor, we apparently are beginning to sense that "a permissive society can exist only if coercion is replaced by inner discipline."[5]

2. *Fear.* Fear itself probably has contrived to push Americans toward a closer study of moral growth. Many developments since 1965 have motivated us: laboratory bombings, the take-over of campus buildings by student activists, and the dead at Kent State University are too green in our memories to need a review here. We are still terribly upset about what, somehow, all of us allowed to occur.

3. *Heightened consciousness.* Although its true genesis remains rather unclear, the heightening of consciousness,[6] already mentioned in this essay, has undoubtedly contributed to the current interest in moral development as reflected in the June 1975 *Phi Delta Kappan* entirely devoted to the topic. Although its roots go back at least to the 13th century, the ideas for a more humane world expressed by a

[3] John W. Aldridge. "In the Country of the Young." *Harper's Magazine* 241:46-64; October 1969.

[4] R. Freeman Butts. *A Cultural History of Education.* New York: McGraw-Hill Book Co., Inc., 1947.

[5] Dennis Gabor. *The Mature Society.* New York: Praeger Publishers, 1972.

[6] Harold G. Shane. "The Moral Choices Before Us: Two Theologians Comment." Interview in *Phi Delta Kappan* 56 (10): 707-11; June 1975.

wide range of writers [7] have been highly successful in shaping the thinking of tens of thousands of precollegiate and college students as well as a substantial number of thoughtful adults.

4. *Materialism and Mammonism.* I remember clearly, as an undergraduate in the 1930's, that my student contemporaries and I had a great deal of faith in material things per se as a way of improving the human condition as it existed in the years of the Great Depression. Many scholars agreed—among them George Counts who urged us not only to create a new social order but to make America a land of abundance for all.[8] The dignity of full employment, a car in every garage (no one dreamt of *two* cars in every garage in 1935), and a chicken in every pot would usher in the millennium, or so we thought.[9]

The material well-being of U.S. citizens in the period between 1950 and 1965 far exceeded the dreams of young materialists like myself with respect to Americans' accumulation of the world's goods. Not only did we end up with two cars, but in suburban middle America, one of them sometimes had to stand in the driveway to make room for a garaged power boat or snowmobile! Despite a spate and then a surfeit of things (Stuart Chase once called it "stuff"), many human longings, many *spiritual* longings, if the times still permit this vintage phrase, went unsatisfied. After some 2000-odd years we once again found that our implicit worship of Mammon wasn't all that we'd fancied that it would be. Ergo, we are again on the move to find moral solutions to our suffocating discontent.

5. *A fundamental message from the Watergate trials.* Despite their many saddening and chastening aspects, the Watergate revelations of what can happen in a governmental environment permeated by a lust for power and laced with *opéra bouffe* hooliganism probably have had some salutary effects insofar as moral development is concerned. For one thing, the hearings and trials suggested that

[7] See bibliography for references to Pierre Teilhard de Chardin, Paulo Freire, Gerald Feinberg, W. W. Wagar, Paolo Soleri, William I. Thompson, Mihajlo Mesarovic, Eduard Pestel, and Alvin Toffler.

[8] George S. Counts. Chapter 7 in *Democracy and the Curriculum.* Third Yearbook of the John Dewey Society. New York: Appleton-Century, 1939. cf. p. 218.

[9] We also thought that Mesabi Range iron ore and U.S. oil resources were practically inexhaustible in 1965.

our institutions *do* hold up in a crisis. Morally speaking, Watergate has called our attention to the need to stress more thoughtful approaches to improving the human moral fiber through schooling. Since Willard Wirtz makes this point very well in his chapter, I shall not belabor it here.

All things considered, then, a reassessment of permissiveness, certain fears carried over from the recent past, a genuine heightening of consciousness, a retreat from raw, unsatisfying materialism, and certain inferences to be drawn from the Watergate inquiries represent some of the forces nourishing the emerging moral dimension in society and its presumable implications for U.S. schools.

But What Is "Moral" Education?

If calling things by their right names is the beginning of wisdom, then defining our terms seems equally important. What do we mean by "moral development"? I already have indicated that *moral* (as used by Salk, Heilbroner, Wirtz, and Thompson) has been identified with equity and justice.

"Moral development" we can understand more clearly if we give heed to Lawrence Kohlberg who, in recent years, has given much of his time and energy to the study of the stages of moral development as they surface serially in children and youth.

Kohlberg credits John Dewey with early, seminal thinking anent moral development when the philosopher suggested three levels of moral growth: blind acceptance of the dictates of others, willing acceptance of others' values, and self-chosen moral directions.

During the past decade, through his inquiry processes, Kohlberg has defined six stages of moral maturation. They are sequential and, at each stage, the maturing learner implicitly or explicitly comprehends his or her present stage and the stage(s) below, but lacks insight into the stage *above* the current one. The purpose of moral education, therefore, is to help the learner pass along to higher realms of development and insight insofar as moral issues and choices are concerned.

Phrased in simplified form, Kohlberg's six-stage moral development sequence begins with conformity to prescribed and imposed standards in order to avoid punishment. At the second stage

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what is right (that is, "moral") is what satisfies personal-ego needs. Moving through the next stage, the learner identifies "good" with pleasing family and peers by living up to their expectations. Stage four brings with it the concept of doing one's duty and respecting authority—a phase beyond which many persons do not progress.

The fifth stage I have heard Kohlberg liken to the mentality of the "Founding Fathers"; a stage at which what is "right/moral" is associated with general individual rights. Equal educational opportunity, desegregation, and their analogs would find support from persons at stage five.

Stage six I find more difficult to describe clearly, perhaps because I haven't reached it! Here self-chosen ethical principles lead to decisions of conscience and the Ten Commandments begin to give way to the Golden Rule. Also, the ideas developed by Jonas Salk and Willard Wirtz in this booklet come into their own: the concept of external restraint being replaced by self-restraint; the lust for material possessions being replaced by the satisfactions of self-expression; interest in the GNP being modified by the concept of a GNW—the Gross National *Welfare* rather than the Gross National *Product* alone.

The Future as a Guide to the Present

In the essays that follow, a group of four internationally recognized scholars examine some of the many facets of moral education with a bearing on schooling. In effect, each looks down the road we may follow in the years immediately ahead as we approach tomorrow, and suggests how we may choose to examine possible tomorrows as a guide to *present* educational decision making.

Salk draws on his scientific experiences in developing moral human equations. Heilbroner, in the aftermath of his gloomy commentary on the human prospect, starkly presents some of our excruciating moral dilemmas.

Willard Wirtz, longtime U.S. Secretary of Labor, clearly depicts the meanings of moral responsibility. Thompson sketches the moral foundations he sees in a new planetary culture and what they may suggest for educational practice. All told, the four chapters that follow are frequently provocative and invariably interesting.

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Grandma's Frog

It is a cliché to repeat what a thousand books and articles have told us since the twilight of our old certainties darkened into the night of our present social and educational uncertainties. Hopefully, the old saying that "It is always darkest before dawn" will prove true. The Danforth Foundation and ASCD, in presenting the present slim volume of essays, trust that we stand on the doorsill of an era of reason and good will in which moral development will acquire new meanings on a troubled planet seeking many new meanings.

Regardless of whether we *can* create the more equitable, just world for which humankind long has striven—a really *moral* world—we have no choice but to try. I very much hope, as in the case of grandma's frog, that we *will* succeed.

"On our farm there were once two frogs," my Grandma Gray told me many years ago. "As they played about the tank in which Grandpa cooled his milk cans, both fell into an open container half-filled with fresh milk. No sooner had they plunked inside than your Grandpa put the lid on the can. He didn't know about the frogs inside.

"One frog was determined and optimistic; the other was a lazy pessimist. 'Dear me,' said the pessimist, 'we might as well give up and drown.' And he did.

"The frog who was a determined optimist kept kicking. All night he kicked. Then in the early morn, Grandpa opened the milk can. And what do you suppose? There was the determined and optimistic frog sitting on a little pat of butter! In a trice, he jumped clear of his butter-raft and hopped safely away. So, whatever you do," Grandma used to say each time she retold her tale, "Keep hopping, keep hoping."

The ASCDers who read the next four essays should be motivated to "keep hoping and hopping" to begin ending the moral dilemmas of justice and of equity that have beset the multicultural society which Association policy seeks to strengthen.

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Educators: Trustees of Evolution?*

Jonas Salk, *Salk Institute for Biological Studies*

My background and formal education were in medicine. I had my medical training in New York. I interned two years, although I knew research was going to be the area in which I would have my career. Everything I have done since the time I left medical school and had my internship, two structured experiences, has been done as an amateur. I have learned about the things I was doing in the course of doing them. Hence, I do not have any one particular discipline that I say I absolutely belong to. Sometimes when I look at my curriculum vita and see the number of professional societies, subdivisions, and subspecialties of which I have been made a member, I do not remember those various incarnations myself. Nevertheless, they have given me a sum total of experience that perhaps justifies my being willing to comment about what I see from my position as a physician and as a biologist; what I see in the human sphere, in the human realm.

The Human Condition

It was about 20 years ago that I felt myself having finished a piece of work. I then moved into the public domain, and subsequent to that, as a result of the experiences and the reactions occurring at that time, I began to be quite perplexed about the human condition. I found man behaving very paradoxically when he was offered something that was obviously of some value, but this is a larger and more complex story which I don't want to dwell upon.

At about that time, or soon thereafter, my thoughts turned to the institutional forms we were all part of: the university structure, the

* This chapter was edited from a transcript of Dr. Salk's presentation.

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Jonas Salk

instruments of society, institutions that were available for dealing with some of the problems of man. I began to have the sense that, in time, biology and medicine will have contributed sufficiently to the health and well being of man by reducing the problems of disease, that he will soon be confronted with the problem of man's relationship to man and man's relationship to himself.

Well, in the 1950's this was the kind of thinking that should not have been done by anyone who was a respectable scientist, or even a not very respectable one. Nevertheless, this became an obsession and I conceived of the idea of creating an institute. I called it for Biological Studies to mark the fact that man also has some biological origins and that it would be an institute in which it would be quite appropriate for man also to be a subject of study and concern. The institute was founded around an interest in the health and well being of man, particularly in regard to the advancement of studies in fundamental biology, in the cause, prevention, and cure of disease, and in an understanding of the conditions and circumstances conducive to the fulfillment of man's biological potential.

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Well, the institute has been in existence for more than 11 years. An effort was made to bring into it humanists and philosophers. Bronowski, who died very recently, and who was responsible for the BBC films on The Ascent of Man, was the kind of person associated with this institute for studies in experimental biology.

The idea I had then, which I feel is still valid, is the importance and usefulness of discussing and considering man in such a context. By that I mean a way of thinking, a way of perceiving. I therefore speak of the biological way of thought, the biological way of perceiving. This is a kind of analogy or metaphor that I use which has become second nature to me. It is not surprising that I see the problems of man as a physician would, looking for that which appears to me to be representative of disorder, with the impulse for finding the remedy. Whereupon I immediately, as a scientist, say, what are the mechanisms involved, how does this come about, and what is the nature of the material with which we are working?

It should be clear that the problem of cancer cannot be solved, as much as we wish and will it to be solved, without understanding the nature of the process. Nor could it have been possible to develop a vaccine for this or that disease without understanding the nature of the organism on the one hand and the immune mechanism on the other. My thoughts along these lines can be illustrated with a number of such analogies. I may draw upon some of them by way of introduction, to get you into the spirit and the mood of this way of perceiving and thinking. Then I will go into somewhat more detail with another illustration and use a drawing to clarify my point.

Different Ways of Seeing

I want to introduce a few illustrations that are made in my first book, *Man Unfolding*.[1] What passes through my mind at this moment is the problem of communication. The problem of trying to convey what is in my mind, what I see, what I perceive, in a way that is understandable and meaningful to others. There are different ways of seeing the same thing, but the meaning contained therein is universal and common. The meaning that we see in things is similar, but we may have different ways of saying what we mean.

[1] Jonas Salk. *Man Unfolding*. New York: Harper & Row, Publishers, 1972.

Man Unfolding has appeared in a number of languages and is about to appear in several others. Interestingly enough, it has different titles in different languages because the term cannot be translated in every language. Even the British edition has a different title from the American because *Man Unfolding* does not sound right to the British ear, or they would prefer to see something else in the book. As a result I had some correspondence with the British publisher, who wanted to use the soliloquy from *Hamlet*, "How Like an Angel," for the title and a subtitle, "Biology and the Nature of Man." I could not dissuade them, and so that is what they see in what I am about to tell you, using a few of the metaphors from that book, which in French will have the title, *Métaphores Biologiques*.

As I look at man from the viewpoint of a biologist and a physician, I see the problems of man as essentially without beginning and without end. Without beginning, inasmuch as we are part of a long evolutionary heritage, we are the survivors of the process of natural selection. Therefore, we have what we have as a result of something that has been going on for a long time.

Where Are We?

Now how did it all begin and how did we get here? We can speculate on that ad infinitum. The matter of greatest concern is, in a sense, where are we? That is what I intend to discuss at some length. I will do this with the evolutionary process in mind and from an evolutionary point of view. My hope is to show you the extent to which this process pervades and permeates everything, and that we are, in effect, where we are because of the evolutionary process and the problems we confront are problems that arise as a result of that process. If we try to lay blame and place culpability here, there, or elsewhere we're completely ignoring the large design of which we are simply particles—a process in which we have an interesting opportunity to play a more active role as what you might call a "trustee of evolution." That is why we have relegated to ourselves, because of a sense of responsibility that is built into us, the impulse to be concerned with the future. As trustees of evolution, then, in that sense, we ask, what is it that needs to be done or can be done now for the future? A sense that clearly has come about through the evolutionary process exists in man to, you might say, serve this

purpose; to serve this purpose simply because it has served the purpose of survival and evolution in the human realm before. Those who have had and exercised foresight have been the ones who have been able to ward off the threats to survival and to the continuation of the evolutionary process.

Education for What?

Now the relevance of all of this to education is perfectly obvious. The fact of education, education of large masses of people, is here with us certainly in this country. And how are we going to deal with that? The title of my remarks in 1961 before the NEA was: "Education for What?" Well, that was the question and that is a question I don't think I've been able to answer for myself, other than saying something about educating to do the right thing for the right reason. Now we could play with that endlessly. In any case, before I'm through I will have emphasized man's dual role, both as an individual and as a member of the species. In order to help form this plastic organism that appears at the moment of birth with a preexistent genetic constitution, we have to know something about the nature of that organism and we have to know something about the processes that are operative in that organism, in the mind as well as in the body.

It is impossible, obviously, to separate mind and body. But with the kind of understanding that has begun to develop, general understanding about the nature of life and the nature of human life deduced by the depth of understanding that we now have of the structure of life, the structure of the living material, we have very powerful thinking tools. I believe they are very powerful tools for education, very powerful tools for developing what I like to think of as a theoretical foundation, the usefulness of which is to allow us to pass on to others what it is that we see.

A theory is a way of giving structure to a concept or to a set of feelings, you might say. It is a way of expressing in intellectual terms what we sense intuitively, if you will, and it is a reflection and expression of the creative process in man. It is a picture. It is an image. Painters will do it with color and form, and thinkers and conceptualizers will do it in other ways.

Therefore we are speaking of the very process that we wish to have a deeper understanding about and that we wish to do something

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about in the course of the educational experience which shapes the person. While I will be drawing upon biological thinking about the nature of life, I will illustrate what I mean by a term that I have begun to use: *metabiology*. Metabiology refers to those aspects of man that have arisen from the biological in the evolutionary sense, but are beyond that in the sense that now they are at a level of complexity influenced in some measure by genetic control mechanisms and are controllable by other sets of forces that lead man to act creatively, which involves self-discipline, the exercise of will and of control, and also of transcendental experiences.

In marking out my point of view and my position, from which I will now go into a little bit more detail, I would like first to make a few biological remarks, so that you can appreciate what I see when I see what you also see. I may see that which is familiar to both of us from a somewhat unfamiliar point of view, which is very useful because it is not unlike, let us say, what the cubists did, or what an artist does in a portrait or a landscape. It creates another impression which sharpens up and shocks us into seeing things which are there, but which we may have overlooked because they have become too familiar.

Now the fundamental structure of living material has been understood for only a little bit more than two decades, with the discovery of the chemical constitution, the chemical structure of what we speak of as the genetic code; the hereditary material which is ingeniously contained in the molecule called DNA. It is of this that chromosomes are made and, as you know, the child essentially is the result of the two parents, inasmuch as the fertilized egg starts out in life with a pair of chromosomes contributed from both parents. The egg is simply the machinery for allowing the code in this molecule to be decoded. The machinery that brings the sperm together with the egg is again simply a device for uniting these molecules and from that point forward, a whole series of programmed, preprogrammed events take place. The preprogramming comes about as a result of the initial appearance of the DNA molecules on the face of the earth, with all of the evolutionary sequences and steps from that moment to the time when they became important in the kind of life that I refer to when I speak of the beginning of a life in a fertilized egg.

Now these statements should leave the impression that there is a tremendous amount of evolutionary history, both before and after the pairing of those two sets of chromosomes which exist by virtue

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of all of the survival and selection that has gone on before. We must see nature as having had a tremendous amount of experience in making choices, in making value judgments, shall we say. I will come back to this matter of making choices and value judgments later, as I believe that we have a great deal to learn about choices and value judgments in order to understand the basis upon which nature has, in the course of evolution, made choices which have exhibited a certain amount of wisdom to have resulted in an organism as complex as man, now capable of perceiving and comprehending himself. And if you think of man as matter capable of perceiving itself, having arisen from the kind of matter to which I have been referring, then it is clear this is—well, I would use the expression "mind-boggling." It is difficult to comprehend, and yet here we are talking about it.

And what we are interested in is: how can we mold this? How can we shape it? How can we help it become, if you will, as wise as nature? What are the limitations? What are the possibilities? Well, when I said that it is just a little more than two decades since we began to understand, with the degree of precision that we do, the molecular basis for life and the nature of the living process, then you see how primitive, primitive in the sense of early, we are in being able to speak this way and think this way. It should not be too surprising that this may be new to you. It is new to me and each day that I awaken with new insights, I am astonished at how rich and valuable this way of thinking is or at least has been for me. It allows me to refer everything human to a construct that already exists and provides a theoretical foundation for an understanding of the nature of man.

The Economy of Nature

This process by which that which is prescribed or predestined, if you will, in the chromosomal material is decoded is extremely elaborate, and it is astonishing that more does not go wrong. The fact that more does not go wrong and things work as well as they do means that there is a plan; there is economy and exquisite precision and elegance in the quality rather than the quantity of the processes or the elements that are involved in the processes. The beauty of that is really something to behold, and when the poets speak, they have a sense of the beauty in the creations in nature.

I will illustrate with just one or two instances the way in which

the capacity or the capability of an organism is expressed. And this shows the economy of nature. Let us take two bacteria, both E-Coli. They normally reside in the intestine. One of them has the genetic ability to make an enzyme capable of digesting a certain sugar. The other one, similar in all other respects, does not have the capacity to digest that sugar. It does not have the enzyme necessary to do so. The existence of that enzyme is dependent upon the existence of a gene, but that enzyme in the competent organism is induced only in the presence of the substrate, that is to say, the sugar which it is designed to digest.

Now the point of interest here, in the context of educators, is that to be able to act the genetic capability must be there, but that action is not induced until an environmental influence is present which in turn acts to release the inhibitor to the production of the enzyme. I will not go into more detail other than to indicate that this illustrates the nature of the relationship between environmental influences, genetic capability, and actual expression of this capability. It makes me think of the process of learning in many ways. The more obvious one is that of antibody production, where the genetic capability to form an antibody exists in the presence of the antigen, let us say, a virus or a vaccine. That antibody is induced to form, and memory then exists of that experience, and the individual is permanently immunized.

Now with metaphors such as these, I submit there is a very large and rich source of inspiration for understanding more about the nature of man which is far more complex than these simple systems. These examples are enriching for the imagination and begin to unite man and nature in a way that I believe is tremendously useful, both for the experience of it and also for education and for going beyond.

Critical Periods

There are other comments that I would like to make about the existence of critical periods, prior to which one experience produces one effect, and subsequent to which the same experience produces an entirely opposite effect. We see this in the induction of immunologic tolerance or intolerance when exposed to a certain substance. Prior to a critical point in the developmental process, the experience results

in tolerance to that foreign agent. Subsequent to a critical point in time, that very same experience results in intolerance.

These clearly have sociological and psychological implications. They clearly have implications for the educational process and experience. And if this leads you to feel that we are very inadequate in understanding the meaning and significance of what we are doing in education, I would say that this is true. We have been proceeding empirically, not experimentally. We may very well be at a point in time when we can look at the results of our empiricism as if these were designed experiments and to try to make deductions on the basis of some kind of theoretical formulation. Perhaps we can deduce where we are and what we might do to learn from that experience, and what we might do in order to learn more from additional experiences.

Robert Heilbroner in his recent book [2] speaks about the experience in China, his own experience in Russia and in the kibbutzim in Israel, the experiences of tribal societies, or the experiences in all different cultures, different religious backgrounds or cultural backgrounds. All of these, I think, are grist for the mill for those who wish to begin looking at educational empiricism from the viewpoint that a Darwinian mind might take. That is, collecting all of this and arranging it taxonomically, possibly, or in any case looking at the mechanisms in the more modern sense of biology to discover the mechanisms involved in these different manifestations of similar experiences. What we are really speaking about is the existence of stages of these critical periods and stages of life of the individual and of the species as well; what we are asking as educators is how can the individual be directed in the course of development, and in so doing we are also asking how the future of the species can be shaped in the course of its future development.

Experiences

We are really asking: What is a nourishing experience? What is a poisonous experience? What is a strengthening or weakening experience? These are questions that clearly are before us every day. I have spoken of the process of natural selection. There is an inner selecting mechanism. There is an outer one in terms of interactions

[2] Robert Heilbroner. *An Inquiry into the Human Prospect.* New York: W. W. Norton, 1974.

with others in an ecosystem. The problems of economics in life, the economy in life, all of these are operative in the nature of man, which, I submit, must be understood in the same way as we must understand the nature of an organism or of a cell if we have any interest in dealing with the control and regulatory mechanisms that have a bearing on malfunction, disorder, or disease.

So that if I look at some of the problems with which we are all confronted, I instantly begin to look at them from the point of view of a biologist and of a physician. I also begin to react with such thoughts as: What are the strategies that might be employed and that are important? I think of such terms as the generosity of spirit, double-win versus win-lose strategies. I see these in nature. I see these in the human realm, and I am aware of the idea in the Darwinian sense of the survival of the fittest. I use the term "survival of the wisest" in my latest book [3] simply to suggest that perhaps a criterion or basis for fitness for survival from this point forward may well be related to what I think of, or we speak of here, as wisdom.

Education for Now

And so what we are really asking is how to educate for the time in which we live, not the time of Neanderthal Man, but now. What I would like to show is what the time in which we live now is like. To put us in that picture, I will now show a series of illustrations that are derived from my book, *The Survival of the Wisest.* (Since the remarks made in relation to the projected illustrations were not recorded it will be necessary to refer to the book for the material upon which the remainder of the talk was based.)

[3] Jonas Salk. *The Survival of the Wisest.* New York: Harper & Row, Publishers, 1973.

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Figures 1 and 2 are examples from Dr. Salk's book, *The Survival of the Wisest*. In studying the curve in Figure 1,

> . . . consideration of the lower portion only gives the impression of continuous, even explosive expansion, whereas consideration of the upper portion gives the impression of modulation and control of this expansion, so that finally a limit is established. At the junction of the lower and upper portions of the curve is a region of inflection at which there is a change *from progressive acceleration to progressive deceleration* and at which the influence of the controlling processes is clearly visible. The break apparent in this region suggests that a "signaling" mechanism of some kind must operate to bring about this change, producing an effect which, judging from the shape of the curve, indicates the existence of a uniform process, reflecting the operation of some kind of ordering principle in response to "signals" both from the environment and from within the organisms themselves. At different points in time along the curve, latent qualities and reactions are evoked appropriate to survival, the program for which is coded in the germ plasm, which also contains an accumulation of control and regulatory factors essential thereto.[1]

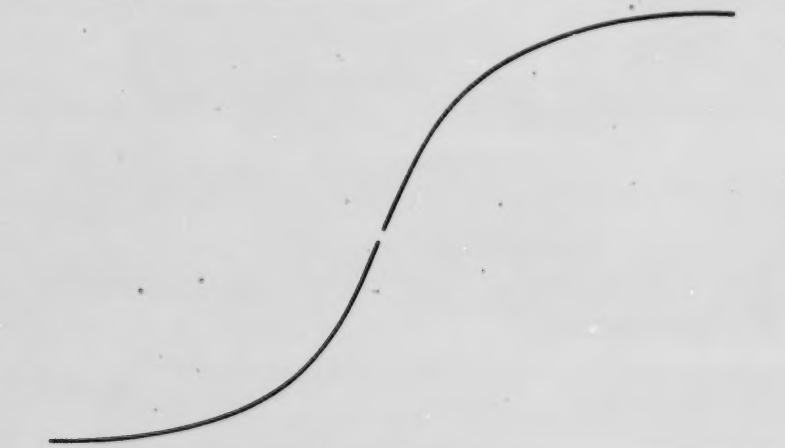

Figure 1

[1] Abridged from: Jonas Salk. *The Survival of the Wisest*. New York: Harper & Row, Publishers, 1973. pp. 16-18. Copyright © 1973 by Jonas Salk. By permission of Harper & Row, Publishers.

The extent to which circumstances differ at different points in time along the curve is graphically suggested in Figure 2

. . . by breaking the continuity at the point of inflection so as to create two curves, A and B.

These curves are intended to emphasize the difference in attitude and outlook in the two periods and help create a visual image of what can be sensed "intuitively." They also convey concretely what might be appreciated "cognitively" by means of an objective analysis of the increasingly complex problems generated by the growing numbers of individuals. . . . curves A and B will be used as symbols of the "shape" of the past and of the future, as we attempt to characterize each.[5]

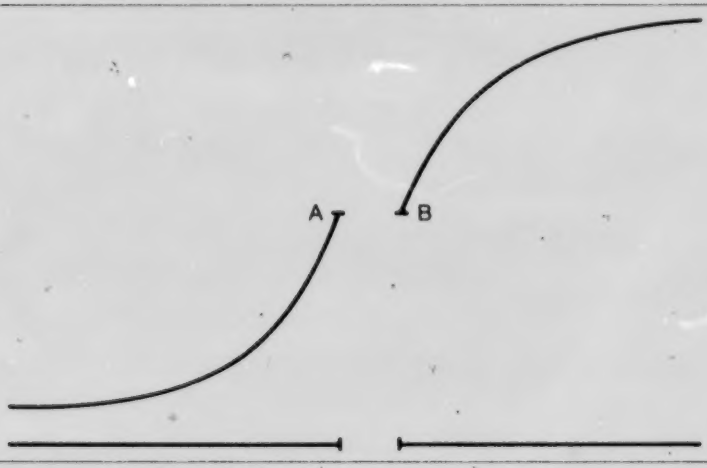

Figure 2

[5] *Ibid.*, p. 18.

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Education for Alternative Lifestyles

Robert Heilbroner, *New School for Social Research*

I was not exactly sure how I wanted to tilt my remarks, although I knew in a general manner of speaking what I wanted to say. Yet in the course of listening to Dr. Salk a certain focus swam into view. I will simply take my chances and speak toward what I now think may be a means of sharpening certain issues between us, and also sharpening certain issues that confront you as educators.

Level of Aggregation

I am going to start with a remark that I had not intended to make at all, but it concerns the level of aggregation—level of abstraction at which we speak about social problems. This approach was brought into mind when I heard Dr. Salk speak at two levels. One focused on the individual human being, and his capacity for change, adaptation, and the rest, and the other, a very large level, about the human species.

Yet just as the microscopes that I used many years ago, when I took an ill-advised course in biology, had three levels of aggregation, high, medium, and low resolving powers, I rather think that the two levels that I have mentioned, the individual and the species, are the wrong levels of abstraction for the kind of problems we face. To put it differently, these levels do not present us with the issues as sharply as a middle level.

There certainly is an enormously important problem about the individual human being. Perhaps the most profound of all problems. Yet I feel that it does not quite come to grips with the series of challenges that I wish to throw out. There is another level, a very large

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level, which involves the human species, which is also very germane when we speak about the mounting curve of population, which is a planetary phenomenon.

Yet there is also an in-between level, which was not discussed by Dr. Salk. It is the level that confronts us when we deal with the question of how we can behave, the limits of our power and the limits of our impotence in confronting the switch from system A, so to speak, to system B. That middle level is a level that is either resolvable into units called nation-states, or into units called socioeconomic systems, and it lies some place between the individual and the species.

When we say the word "we" in a sort of activist sense, what we can do, I do not really think we are talking about ourselves as individuals, as human beings. There is very little that most of us can do about enormous problems as human beings. A few people are in a position, by virtue of their special attainments, to have extraordinary magnified impacts, but this is not true for most of us.

And it is also true that we do not speak as a species, being, each of us, a cell in the aggregate body of humanity. Instead, we speak as members of, participants in, captives of, nations. As Americans, or Belgians, or Swiss, or Jamaicans, or perhaps as members and participants and captives of systems called socialism, capitalism, and all those variants. So the first thing I wish to throw out is the problem about the level of aggregation. The first point that I would like to make is that the level that we need to bear in mind is the nation-state level, or the socioeconomic level.

Coming Apart at the Seams

Now that, by way of preamble, does indeed pose a sharp issue between Dr. Salk's view and my own. My premise is surely one that is contestable, but nevertheless, it is the premise on which all else hinges, and I wish to advertise its presence and its vulnerability.

The premise is that we live in a time very beautifully portrayed in the AB diagram. We live in a time in which the prevailing systems of social organization are in some sense or another coming apart at the seams. At least this is true for the West. We live in a time in which we all feel, I speak now of we as national citizens, that something is radically wrong. We live in a time when we feel an extraordinary impotence in terms of coping with problems on a national level, and

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an extraordinary degree of threat when we speak of coping with problems on an international level.

You may disagree, you may think that this is a time in which none of this kind of dire shift of systemic capabilities is present. There is in this premise not only a set of conditions that I wish to explicate, but there is also a very profound dilemma. I want to begin, not alone with the question or with the problem of the level of abstraction and the premise about coming apart at the seams, but with the dilemma.

The dilemma, in a word, is that it is very difficult for people who are in some sense or another engaged in education, to know what to do, what to advise, and what to teach, in the face of a situation in which things are coming apart at the seams. We do not know, to put it very baldly, whether to educate people to be A-citizens, B-citizens, or C-citizens, and I will talk about C a little bit more.

There is an analogy to this, an analogy that points up the truly dilemma-like aspect. When I said dilemma, by the way, I did not mean just a hard problem for which there is an answer. I meant a problem for which I do not know an answer, although an answer may exist.

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The Decay of the Roman Empire

Let me give you an analogy that is perhaps fanciful, but not, I think, entirely farfetched. There was one, perhaps more than one, period in history that resembles ours in the coming apart at the seams feeling from which I begin. And the analogy is the gradual decay, that is a better word than fall, of the Roman Empire.

Suppose that we were assembled in some hypothetical gathering of educators, or thoughtful citizens, in let us say the year 300 or 400, before the sack of Rome. We sought to combine our wisdom about what to teach, or simply what to do, or how to live, as citizens, in a time when we also felt things coming apart at the seams. And suppose we were also gifted with a certain foresight, prescience, about what was to come. What would we do?

Could we advise young Romans to rally 'round the wisdom of Greece and early Rome, whose relevance at that particular time in history had simply been dissipated? Could we advise people to join the great subversive movement for the future, which was the Christian church, particularly if we knew that the next 1,000 years of Christianity would be attended with burnings, dreadful religious wars, and so forth? Could we advise cultivated Romans to go over and be Visigoths or Ostrogoths? And I could go on with this analogy.

I think the answer is that we would be very hard-pressed to find easy answers, or any answers. And I suggest that something like that dilemma, that genuine perplexity, is the unhappy fate of people like ourselves who are thoughtful—I hope—and concerned—I know—about what to do about our own lives and the lives of younger people whom we influence.

Now let me next go to the supporting data that underlie the premise that things are coming apart at the seams. There are three groups of data, and I shall be very didactic about them. I suppose the data themselves are intertwined with the premise, and if you contest the data the premise begins to shake. Maybe these are subpremises.

Critical Population Level

Now, one is the fact that we are living at a time when the population situation has reached some kind of critical level, and at which the prospects for a leveling off of population in the next

generation or two are very slim. This is the case for two reasons. First, empirically speaking, the results of population control programs have been very, very poor. Second, because even if by some miracle we could find the drug, whatever it is, and induce peasant populations in the underdeveloped world to take this drug, which is less easy to imagine, there is the population pyramid factor. It is grossly distorted in terms of the age distribution of the young, so that even if birthrates fell to reproduction levels, the coming into fertility ages of this vast base of the population pyramid brings with it implications for more than one doubling of population in the next two generations.

Rich and Poor Nation-States

The second reason that makes me think that things are so critical on a large scale, and that there is a coming apart at the seams, has to do with the profound shift in the relationship between rich nation-states and poor nation-states. That relationship has been over all of the world's history easily summed up, this is probably a simplification, but I will risk it, in the word exploitative. Rich nation-states have exploited poor nation-states.

Now this is not entirely true. Rich nation-states have also exported culture, laws, institutions, and certain ideas. Nonetheless, basically the relationship has been skewed in favor of nations that have the armed capability and the economic might to impose their will on those nations that lacked it. This is undergoing a change, a great change, at two levels. One level is the diffusion, the dispersion of atomic capabilities into the hands of the poorer world. This is a point that I stress in my book *The Human Prospect*, which I finished in 1973.[1] Shortly after I finished the book I went to a meeting on India at the Council on Foreign Relations. India had exploded its first atomic bomb the day before. When I walked in everybody turned to me and said, "You did it."

India has done it, and of course China has done it, and the talk that surfaced immediately after the Indian detonation was not whether, but when, Iran, possibly Pakistan, certainly Brazil, Egypt, and a long list of nations will also have this devastating capability. The capability

[1] Robert Heilbroner. *An Inquiry into the Human Prospect*. New York: W. W. Norton, 1974.

in itself profoundly changes, in ways that we do not truly understand, the power relationships between rich and poor. It changes the nature of the game, so to speak.

In my book I suggested that if worse comes to worst, it raises the risk of wars of redistribution. This is a kind of Herman Kahn type of projection that I do not really like to stress, but it is a possibility.

Less apocalyptic is the pressure of expanding world systems on world resources which is my third point. Tying into the question of the balance of power, it also may, although we can't be sure, shift power into the hands of nations that never had the power before. The most dramatic and striking incidence is OPEC, the Oil Producing and Exporting Countries—the Near Eastern nations and the oil producers who in a single year, to take the Near East alone, have amassed as much net foreign investment as the American economy has in a century. What will happen if OPECs are followed and duplicated in other materials like bauxite, tin, other kinds of commodities? I leave the question open, but it again buttresses my contention that the balance of power between rich and poor nations is shifting, and that this enjoins a different outcome about the future of the world's economic distribution than any that could have been imagined 25 years ago.

Environmental Overload

The third underpinning of my argument, the third reason that I believe we all have this feeling that something is coming apart at the seams, is the very familiar fact of environmental overload. Now these facts can be handled in ways that are mechanical and easily shown to be alarmist. Just to absolve myself of that I reviewed the Meadows book, *The Limits to Growth*,[2] in *Foreign Affairs* about a year ago. I did lambaste it for its irresponsible use of statistics, which are dreadful, and its mechanical computer projections with sort of fixed coefficient feed-ins and so forth. Nevertheless, and just the same, the essential dilemma which no one contests, at least no one that I know in the economic world, is that there exists a basic problem when you have exponential processes running up, taking place inside a

[2] D. Meadows *et al. The Limits to Growth*. Washington, D.C.: Potomac Associates, 1972.

fixed container. I mean the process is inherently unstable, impossible, and you get the sigmoid curve. At a certain point the rate of growth, which is the exponential factor, the rate of expansion of output of goods, which has been growing exponentially for the past three decades at roughly seven percent a year, cannot go on at this exponential rate forever and we will sooner or later have to taper off.

Now it is a very important question as to whether it is sooner or later, and Meadows thinks it will be very soon. I think it will not be quite that soon, but no one disagrees that there will come a time—let me say metaphorically in my grandchildren's time, possibly even in my children's time, possibly even sooner—when nations all over the world will either be unable to sustain their industrial rates of expansion because of resource constraints, squeezes, or that they will be unable to sustain their industrial rates of expansion because of the inability of the ecosphere, water, air, or soil, to absorb the by-products, including heat, that emanate from industrial processes.

Now the upshot of all this is very simple, and a conclusion that I think few people would contest. It is that the rate of industrial growth is going to slacken. If the rate of industrial growth slackens, it simply means that there will be less wheat, fewer cars, houses, glasses, watches, or any other kind of output, which will have to be shared among still larger and growing numbers of people.

And the question will be: How will this distribution take place, first as between nations, and second, within nations? And my contention is that it will take place with great difficulty, and now we rise to the level of abstraction that I think is essential.

I don't know how we as individuals would react, or will react, to gradually increasing awareness of these strains. Maybe we will become more socially conscious and concerned and thereby lessen the problem considerably. Maybe we will engage in a saturnalia saying, "What has posterity ever done for us?" I don't know what the species will do, because I find it very difficult to speak about the species when we speak of a problem that will have such differentiated impacts at different portions of the globe.

Who Gets What?

But I think I know what will happen, or at least I think I can make a guess. I certainly don't know what will happen at the level of

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abstraction or aggregation that interests me, which is nation-states and socioeconomic systems. I think that nation-states are very apt to go to war, or let us say contest, about who gets what, when there will be less to get and more and more people seeking it. I think within nations the pressure for fair shares, for distributional justice is apt to intensify. And I fear very much that when nation-states face these kinds of exacerbated social pressures the tendency of these units is to drift in the direction of authority.

My reading of history in a matter like this is surely impressionistic. I don't know whether one can, so to speak, make a scientific reading of history. But nonetheless, for better or worse, my reading of history is that when nations are in crisis their impulses, or the impulses of individuals, are to seek solutions through authority, not through the dispersal of authority, but through the aggregation of authority. Authority serves many purposes, it establishes and instills feelings of confidence, it reestablishes the familial pattern of youth, it awakens certain irrational bonds within us of, again, a familial kind, rooted in our childhood dependencies.' Although some may disagree with this reading, my own feeling is that an intensification of authority is probably the way in which nation-states are apt to face this increasingly constrained environment.

Now this is the essential message of *The Human Prospect* and it is the essential message that I wish to put before you so far as premises are concerned. Now I want to venture further out on the limb and discuss what this has to do with education, or what you can do with these facts, if you accept them. If you reject them, then of course you are home free. Then the problem disappears.

Sentries

There are two easy things to do, and one very hard thing to do, as I see it. One easy thing to do is that individuals like Dr. Salk and Dr. Thompson and others become what I call in my book "sentries." I am not sure if that is the right word. We are people who, while our townspeople are still wrapped in slumber, see the approaching enemy. We measure the extent of the threat, so to speak, and we take it upon ourselves to waken people who are asleep.

It seems to me that a lot of sentry activity is beginning to take place. Something that educators can surely do is to serve as sentries

and try to shake their sleeping classes into at least half awakened conditions, in which they are aware of the nature of the threats, and the implications in terms of states A and B.

Alternative Systems

A second thing that I think educators can do, with somewhat more difficulty, but again, something that has at least specificity of a kind, is to start talking about state C. That is to say not only must we alert students to the conditions that are implicit in the steeply rising slope of A, and to their possibly very unpleasant resolution in state B, the risks, the dangers, the gauntlet that has to be run through. We must also begin to talk, in ways that educators usually don't talk, about alternative systems.

These alternative systems may be versions of capitalism, though I doubt it very much. They may be versions of what is now called socialism, though I doubt that very much. They may be much more communitarian. They may draw from the lessons of primitive society, and indeed, as someone said today, bring us away from the linear thinking of gradients of evolution to a more cyclical, or if you want, homeostatic, repetitive vision of human life.

At any rate, with whatever degree of fantasy, or controlled speculation, or what have you, something that can be done in the educational world that really is not much done, is to get younger people to think about other ways of living. Now to some extent these other ways spring up quite aside from teachers like us, all of whom are much too old and terribly much rooted in state A, or whatever it is. The young people themselves are often our teachers, and perhaps one of the things we do in becoming aware of our task is to look at experiments of young people, which often look at first sight to be offensive, or crazy, and try to distill from them those portions that may have lasting utility.

The Dilemma

At any rate, that is something else to be done, but I would be less than candid if I did not raise the last problem, the last aspect before us as teachers, and that is the dilemma aspect. And that is something I mentioned earlier about whether we are teaching people

to be members of A societies, B societies, or C societies. We live in this society, sort of at the end of A, more or less, or the beginning of B. And indeed, to teach young people to survive may mean instilling in them a very different set of ethical, moral, or simply daily precepts, than we would if we were teaching them what to do once the storm had been run through.

The maxims that we teach them, not only as individuals, but as members of nation-states or members of socioeconomic systems, may not be in accord with the long-run maxims that we would teach them to be members of, if you'll forgive the term, Utopian communities.

One of the great problems is that it is a necessary evil that we have nation-states, and indeed socioeconomic systems with all their bureaucracies and the rest, as we make this transition. I look at the communes, for example, the communitarian experiments of young people, with a great deal of sympathy; but I do say, how are they going to produce electricity? How are they going to mine coal? How are they going to make even the necessary implements while they are living on farms? I know the answer; they can't. I do feel that the means by which the population has to be stabilized eventually, the means by which nuclear weaponry has to be dealt with, the means by which the environmental challenge itself has to be overcome through the encouragement and channeling of science, is a national means, and also a socioeconomic means.

Members of the System

So, you simply have to teach young people to be members of the system in which they are going to live. It is just that you cannot teach young people not to be anti-patriotic, but non-patriotic. It is educating them for oblivion. You can't teach people not to join the system—well, you *can* teach them not to join the system, but it is awfully hard. You are really condemning them to a marginal, and perhaps even parasitic life. In the short run you have no option but to teach people to become national citizens, members of socioeconomic systems which they may indeed work very vigorously to change, but with which they must nonetheless make their peace.

And yet, at the same time, I think many of you—and I myself—feel committed to something beyond this. We feel that there is rooted right in the nation-state, and right in the socioeconomic system, and

I think above all in the industrial process, the source of the coming apart. We would like to teach young people not only to examine alternative ways of living, but in some ways perhaps to be audacious enough to experiment with them. Now that is a real dilemma.

It asks us on the one hand to prepare people for the B stage, the stage of very painful social change through nation-states and through economic systems, and on the other hand, to prepare them for the C stage, which is still a long way down the road. And there we stand, I think, in the same kind of anguishing dilemma that we would if we were looking back and asking what we would do advising citizens of Rome how to behave in the year 400.

I feel this dilemma very much, myself. If ever the word existential had a meaning it has a meaning when I ask myself what shall I tell my students when I feel so strongly that they have got to be members of some kind of socioeconomic system. I don't care if it is capitalist or socialist or Chinese or whatever, but they must be members of some kind of nation-state for their lives. At the same time, I feel that nation-states are one of the great curses of history, and that socioeconomic systems are, by and large, all dreadful.

All I can say is that the way I personally don't resolve but express this is to tell it to my students. I tell them, look, I'm in an awful bind. On the one hand this, and on the other hand that, and there is no reconciliation between the this and the that. As a teacher I feel I am impelled to tell you what I think, so this is what I think, and I hope you think I am wrong, and that is it. And they all walk away from it and they come up after class and say, "Yes, but which do you *really* think, you know?" What is the answer to that?

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Moral Responsibilities of Government*

Willard Wirtz, *Curriculum Development Associates*

There is frequently the suggestion that to talk about the moral implication of governance is to deal with a contradiction of what is more than terms. Yet, my view of government is best stated by Andrew Oliver. About 170 years ago in Boston he said:

> Politics is the most hazardous of all professions. There is not another in which a man can hope to do so much good to his fellow creatures. Neither is there any in which by mere loss of nerve he can do such widespread harm. Nor, is there another in which he may so easily lose his soul. Nor is there another in which a positive and strict veracity is so difficult. But, danger is the inseparable companion of honor. With all the temptations and degradations that beset it, politics is still the noblest career any man can choose.

Now, as far as a discussion of the moral responsibilities of governments is concerned, to have a manageable issue, we have to do some focusing in several respects.

First, when we talk about morals of governments, are we talking about an individual politician's morality? I say no. It has a relevance to the government's process, but its only relevance here is that it contributes further to the weakening of that essential fabric of confidence in the leadership upon which a democracy depends.

Second, to have a meaningful subject of discussion, we have to concentrate on the moral responsibilities that inhere in the process of governance itself. We will not be talking about the morality or immorality of particular policies which a government may come to. So, this will not be a discussion of Vietnam; nor of whether the

* This chapter was edited from a transcript of Mr. Wirtz's presentation.

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solving of a nation's inflationary problems is properly even approached by a decision to throw the burden of solving the inflationary problem on the bottom two million people on the employment rolls. I count that immoral, but I don't count it part of our subject here.

Third, the issue would not be advanced by making this an autopsy on Watergate. That was not a question of morality versus immorality. It was a question of morality versus amorality. I do not think the question of right or wrong even entered those people's minds.

That is a very different question from what we are trying to view; taking the hard problems that involve a balancing of good and bad, or even right or wrong. There was no balancing there.

Now, to make a key assumption and further focus the issue, I assume that the discussion is of the moral responsibilities of governance in a democracy. In this context, and this is critical to further development, I find the measure of morality as being consistency with the authentic principle of democracy. That is, governance is to be in accordance with the 51 percent judgment of an informed membership, arrived at on a head count basis.

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I suggest that we identify two elements of the moral responsibilities which relate to governance. First, those which relate to the function of leadership in a democracy; and, second, those which relate to the function of membership in a democracy. These are by no means entirely separable. They are clearly not of equal significance. I count the moral responsibilities of the *leadership* almost derivative, and find the essential question before us, especially as we are talking about its relationship to education, in the moral responsibilities of *membership* in a democracy.

Leadership and Membership in a Democracy

As far as leadership is concerned, there are three poisons which infect the leadership in a democracy in a sense which could appropriately come under the rubric of morality. Those three very briefly are: money, bullyism, and incredibility.

As far as money is concerned, there is a new election reform act which changes the position of money in the election and the government process quite substantially. It provides for limitations on the amount of money which can be spent in connection with an election. It provides for some degree of public financing of the election process. It recognizes the dangers of corruption, puts limits on the most serious practices, and yet makes those limits so broad that a considerable risk of corruption remains. It can only be hoped that we will move beyond that to something which is more realistic, as far as getting rid of the influence of money is concerned.

Now, about bullyism. We know that problem so well that there is no point in going into a lot of detail. The concept of due process is the life blood of morality and governments, and I think it appropriate to identify that issue with the question of morality. It shows up in its commonest form in connection with the administration of our system of criminal justice. It poses some very hard issues as to how far we can appropriately go in protecting an individual's rights when it is pretty clear that that individual has offended the society very seriously.

I think we can find the right answers without compromising those principles for the protection of the individual, and that it is essential that we do so. It is a real question in my mind whether income tax returns should be used by any government official for any purpose under any circumstances. I would question the uses of technological devices

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of one kind or another as they result in an increased intrusion upon the integrity of the individual. I shudder at the prospect of how, or even whether, democratic governance will work at the point at which there are discovered ways of finding out what an individual is thinking.

Now, of incredibility, as the third poison affecting the moral responsibilities of the leadership function of government. Here there is a relevance of things like Vietnam and Watergate. The whole process depends critically on people having enough confidence in leadership that they will do things for reasons other than being required to do them. Our most serious problem right now is that we see increasingly a tendency to do only those things which are required of citizens by law.

We still have a considerable reservoir of almost conditioned confidence. Yet, at the moment, it would be foolish to disregard the fact that there is a loss of confidence to such a dangerous extent that people are inclined to do only those things which they have to do, and to feel no obligation beyond that. The incredibility that was involved, perhaps more in Vietnam than in Watergate, perhaps only caricatured in Watergate, is a serious matter affecting the governance process.

There is the importance here, too, of the pervasive practice of white collar political criminality. When you read what the typical politician says about a particular problem, you realize that he is telling, at most, only half of the facts, that half which he thinks will be most palatable to his constituency. When a politician prescribes an approach to the problem of inflation in terms of cooling the economy, instead of saying that the demand be reduced by putting two million people out of work, I call that a form of immorality, of a very basic kind.

Enough of the functions of the aspects of moral responsibility as they relate to the leadership function. They do not seem to me, in general, to include very much of relevance to education. I know that one of the Watergate defendants, Jeb Magruder, said that what he did was the consequence of what he learned from Rev. Henry Sloane Coffin at Yale. He was just piling one more cover-up on too many others. I do not dismiss entirely the conditioning influence of education on future leaders of a governance process. But I do not think that it is nearly so important as the moral responsibilities relating to the membership function of democratic governments.

The Twin Immoralities

The twin immoralities of membership in a democracy are ignorance of the critical issues and nonparticipation in the governance process. If we are to depend on a 51 percent head count decision of an informed electorate then it does seem to me that the basic flaws—call it immorality or something else—are in not knowing and in not doing anything about it when you do know.

An extraordinarily interesting and important report and study appeared in December 1973, a report from the Senate Subcommittee on Intergovernmental Relations based very largely on a poll conducted by Louis Harris in September of 1973. The report is entitled "Confidence and Concern."

It speaks to this whole question of how much people do know about and how much they are participating in the government process. It makes, abbreviating the report terribly, three points. First, people don't know, and they know they don't know, and when asked they say they don't know, what the important elements of the immediate governmental problems are.

They say, second, that they don't do anything much at all about them. Voting is the largest form of participation. Voting ranges, as you know, from about 30 percent to 65 percent depending on what the election is. When you go beyond voting, there is almost no participation. Almost exactly one-third, 33 percent, report that at some time in their lives they have contributed to a political party in either services or money. About that same number report that they have written to a public official. That is about all there has been in the way of participation.

But, the third and most important part of that report is that, approaching the matter very carefully, Harris and the Senate subcommittee came to the conclusion that people *want* very much to participate more fuliy in this process. That was the real point of this inquiry, and it establishes more fully than anything else I have seen the very important point that if there is some way of approaching this problem better than we have been so far, we can count on there being a much greater degree of participation.

Just in percentage terms, the figures in this area are astonishing. They show a significant desire, in the range of between 60 and 85 percent, on the part of individuals to participate more fully in some

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form of governance. I expect this figure is probably not reliable, but the important thing is that if it were even a quarter or a half this large, it would make all the difference in the world as far as morality and participation are concerned.

Implications for Education

To identify ignorance with immorality, so far as the process of governance is concerned, is to make the implications for education fairly obvious. But they go beyond teaching more courses in civics. That kind of information has limited value. There is perhaps more suggested by the possibility that instead of just developing "hands-on" educational experience with work, we also develop a "hands-on" educational experience with governance. I think there are real opportunities for interrelating the educational and the citizenship experiences.

We have to recognize that if we are going to do anything material as far as education is concerned, it will have to take the form of the establishment of some new processes involving some new structures. New programs are not enough.

To realize, for example, what has happened with the high school's assumption of responsibility for the function of vocational guidance and counseling, is to be astonished at the absurdity which went into that decision. The institution which had previously been fulfilling the guidance and counseling function, the family, dropped out and the high schools tried to take over. But they can't handle it. Adequate guidance and counseling probably depend now on establishing some new community structures in which the representatives of the educational world and the employment world work with the representatives of the community at large.

There are similar possibilities as far as the development of an interest in citizenship is concerned. There was some discussion earlier about the strategy of change. I am convinced that the worst mistake we make is to assume that there can be significant social change accomplished without the establishment of new processes and without a new institutional structure.

If we are talking about enlarging the role of the individual, if we are talking about improving the opportunities to make the highest and best use of the life experience, if we are talking about trying to change

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education, it seems to me almost imperative that we change the measures by which we count ourselves as getting ahead, or not getting ahead.

In conclusion, it is all right to narrow a subject for purposes of discussion, but if by narrowing it we have left out the heart of the problem, we should at least realize that possibility at the end. What I have said proceeds on the assumption of that 51 percent judgment of an informed membership. It proceeds on the assumption that it is possible to inform a membership, in this country at this time, in the world at this time, with respect to increasingly complex issues to a degree sufficient to make informed judgments. It also assumes that there will be a participation by individuals, by informed individuals in the democracy. We must reckon with the fact that people's attitude may very well be, even if they are informed, "Well, let Wilbur, Dick, and Jerry do it."

Those are problems to be reckoned with. I have real trouble thinking through the implications of the fact that the agency in government, in the governance process, which has been the most effective instrument of social change in the past 20 years has been the judiciary. The Supreme Court, with Brown vs. Board of Education in 1954, and other courts in various other matters have shown an adaptability and a responsibility in the handling of change which goes way beyond that displayed by either the executive or the legislative branches. Of course, the trouble is that when you say that, you are brought squarely to face the question of whether that is because the judiciary is furthest removed from the electorate.

That brings this issue into a position almost parallel to the one which Robert Heilbroner outlined earlier. It is possible that a combination of forces has created such problems that it is simply ridiculous to assume people can handle them. I don't believe that at all. He came to the conclusion that there were three forces. One was the exploding population, another was the "corner drug store" availability of nuclear gadgets, and the third was the industrial society's rape of the earth's resources. He concluded that those three will simply create a situation in which we've got to turn to a form of government that will blend a religious orientation and a military discipline.

Well, I disagree, but respectfully. I don't think the potential of a moral democracy operating with the benefit of the membership as fully informed as it could be has really been tested. I find, as simply

a testament of faith, my answer to Dr. Heilbroner in words which I think were Antigone's to Esmene: "Until we have tried and failed, we have not failed."

Education: Agent for Change

I don't believe we have exhausted the possibilities of more fully informing the electorate and trying in one way or another to stimulate its participation in the handling of the democracy, the affairs of government. I see the prospects of change coming through the educational rather than through the political processes. At least in the immediate present, it is not going to be possible to change the habits of political leadership enough. So I fall back on the necessity of changing the habits or the capacities or the attitudes of the political membership. And, at that point it becomes largely a matter of what the educators can do.

I find the encouragement of that prospect, or at least the suggestion of the imperative of it, in some lines of T. S. Eliot, "Where is the life we have lost in living? Where is the vision we have lost in knowledge? Where is the understanding we have lost in information?"

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Lindisfarne: Education for a Planetary Culture

William Irwin Thompson, *Lindisfarne Association*

Since I have the pleasure of having the last word, I think I'd like to reflect over what we have been discussing to make this a kind of reflection backward and summing up. Then I'll move on to what I think should be our concern, which is a return to our theme of considering the moral dimensions of the future as they have implications for schooling.

I think we have been staying away from the future and dealing very much with the present. I would like to try to again stretch our imaginations toward how the future is going to impinge upon and touch what we are dealing with.

I think one thing that is useful, when we think about futures and futures research, is to realize that the future is an imaginative way of dealing with the implications of the present. The great miracle of understanding history in time is to be able to perceive the present, and because cultural transformations are so large, they're basically invisible. We are all like ants crawling across Picasso's "Guernica" and we can't really catch the scale of it. I was arguing before that this revolution is so fast it is now occurring in our lifetime. We are beginning to perceive our own transformation of human culture, whereas earlier ones, like the industrial revolution, really were not occurring in the scale of a human lifetime.

I think it is important to realize that there are forces of conservation; human nature is not going to disappear; institutions are going to stay with us, and even when we are in a culture of post-institutional anarchic man, institutional men will still be with us. Just as when universities became the leading forces of modernization and research and development, the church lost its charisma as a basic

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institution of Christendom or Christian civilization, but the church did not disappear.

I am going to discuss change and new directions and new innovations, but not in an "either/or" context. I am not saying that the old is going to disappear; while we have electronic music we still have the New York Pro Musica and recorder playing, and while we have factories we still have farms.

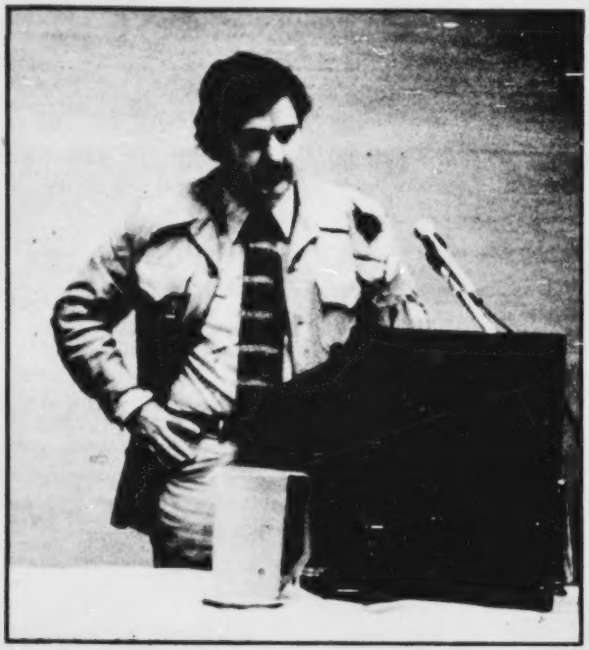
Innovation is always a question of surrounding the present with a new symbolic envelopment, a new consciousness by which what once was our total environment now becomes merely a content in a much wider and larger environment. For example, when there was the first industrial exhibition in 1851, the glass and wrought iron structure was built around the trees, and there were museums inside about the history of Medieval Europe, so that the nature was surrounded by culture.

I think there is a new cultural innovation coming in, and it is surrounding institutions. The energy is being displaced away from institutions to the energy of culture at large, and this has dramatic implications for education. But it doesn't mean institutional education, or school systems, or universities, or churches, or government, or law systems, or anything like that is going to disappear, so don't polarize me any more than I'll polarize myself.

The Present Is Invisible

One of the things about perceiving time is this quality of invisibility of events; some people simply cannot see the present. It takes a good deal of imagination to really see what is going on. None of us has the ability to go into every multinational corporation boardroom, to go into every government, to go into every research laboratory, to go into every monastery where people are going into meditative states of consciousness; so none of us really has a sense of what at this minute is going on in the history of the human race. We will find out about it maybe five years from now.

The present really is invisible, so we have to learn that when we're pointing to the facts of life, and reality, and saying this could never happen because, just look around you, we're not pointing to the present, we're pointing to the past. When you walk out and you see the landscape of Washington or New York, you're not seeing the



William Irwin Thompson

present, you're seeing the past, just as when you walk out and look at the stars you're not seeing the light of the present, you're seeing the light of the past.

So what a futurist does (though I don't really think there are any successful futurists) is make mistakes. Therefore, if a futurist is sitting at the right hand of a policymaker he is a superstitious astrologer sitting at the right hand of the king and is passing out all kinds of bogus information. There is no such thing as futurism at all.

But what the future is, is a rhetorical and imaginative way of dealing with the implications of the present. Imagination is best handled by imaginative people, namely science fiction writers, poets, visionaries, people of this sort. At present, some policymakers or researchers treating futurism are very linear, unimaginative people, and are basically using the future as a political ploy. They are using it as an illusion, as a rationalization of power. I think, as such, they are dangerous if we give them too much credence; if we believe that they really can manage the future and can deliver the goods, and that

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somehow or other life can be packaged and rationally dealt with.

I see that kind of process, the hubris of thinking that we can manage the future, as directly coming out of our heritage of social science. As we moved away from institutions which gave us our identity in the past, as a member of Parliament, or a clergyman, or a professor, each with his ceremonial robes of office, and each with his traditions; as we moved away from that to the now, immediate role definition and task forces and what was called technocracy, we moved away from large vistas of time to short vistas of time. The past was irrelevant; we had to forget about it, and everything had to be dealt with in terms of sophisticated management.

Well, human beings are time-conscious and time-carrying animals. We can't deal with just the shriveled consciousness of this minute, so we tend to replace that imagination of tradition and the past that we used to carry with a new consciousness of time called the imagination of the future. We began to talk about how we will farm the seas, we will create hybrid grains, we will manage the earth, we will create wonder and plenty, and it was a grand liberal vision of the betterment of mankind. Of course we are now at the point where all those linear extrapolations have been changing, and they are all becoming disastrous apocalyptic curves, and the green revolution has failed and we are not farming the seas. The Atlantic is becoming incredibly polluted.

So we have seen, with a shock of recognition, that some of those grand visions of experts were really quite shallow. And I think that there is now a suspicion of expertise. I was delighted with Dr. Salk's experiences, because everything I've ever studied in the history of science says that what happened to him is symptomatic of every innovator who has ever made any breakthrough in science since science began. It is, in fact, the pattern of innovation in business, the pattern of innovation in government, the pattern of innovation in art: it is *the* pattern of innovation.

The question has been asked, why, what, who was getting in the way? Why were they resisting the facts? And immediately my answer to what forces are responsible for getting in Dr. Salk's way is Education. Since we are dealing with the moral implications of education, let me introduce certain moral dimensions, or more affective or emotional things. I found in my own life a strange paradox. The liberal technocratic experts were the ones in educational systems who always

were sending the police after me, and by a strange paradox the *noblesse oblige* traditional Republicans were giving me scholarships. I found all through my education that the most enlightened experts were the ones who were actually trying to interfere with the process of my education. I was a high school dropout.

So there are many ways in. When I was in high school I had fantasies of being asked to come back to speak to Los Angeles High School as a kind of distinguished citizen so I could say, "You know, you tried to do everything you could to stop me when I was here." Now some of those teachers weren't all bad. But then there were some who would call up my best friend and say, "Watch out, he's a subversive," because I was talking about Thoreau, and "Don't let him associate with your friends." Or they would call up my girl friend's parents and say, "You really should not let her associate with this fellow," and the counselors were doing all kinds of very subtle and devious things.

A couple of teachers had the brilliance and the simple humanity to invite me over to their house and to give me a chair by the fireplace and a glass of sherry and I would read them all some of my poetry and writings and we would have a grand discussion. So there are always human beings in an institution to protect other human beings from the institution. It seems to me that within institutions there are located certain subversive individuals who are human and who are always there to protect other human beings from being damaged, or routinized, or formed into shape.

I was not doing anything very drastic. I was talking about Thoreau, and quoting Emerson on nonconformity. This was an age before Sputnik, in which everyone was supposed to be a student body leader and get a scholarship to Stanford and that was the end of human existence.

There is a problem with education as it tends to fossilize into a certain form of routinization of imagination and passing out of information. We tend to fear the thing we say we are trying to instill: nothing terrifies us so much as innovation. Nothing frightens us so much and makes us feel so insecure as imagination. And it is really quite difficult to know what to do with it when we discover it. This is human nature.

We cannot think in terms of good guys or bad guys, because this device has been used by academies of science as much as by high

school teachers in Los Angeles. So I think we have to, in some sense, develop compassion, since morality and the achievement of values occur in the field where there are good guys and bad guys in all possible positions. There are good liberals and conservatives and reactionaries and radicals; it isn't the case that one single ideology has the truth.

A Pluralism of Elites

Truth is what appears when two ideologies conflict. Truth is a magnetic field that overlays the whole field itself. You can have men of good will who are reactionaries, men of good will who are conservatives, men of good will who are radicals, and men of good will who are liberals. So there is no way we can find the truth, and incarcerate it, and embalm it in a mausoleum like Harvard, and say this is going to be the central church of the modern world. Henceforth the truth will come from here and the true men shall go forth to sit at the right hand of the President, and the world will be ruled in an enlightened fashion.

We need a pluralism of elites. We need to have our elites distributed inside institutions, outside institutions, in Big Tens and Ivy Leagues, and in non-institutions themselves, so that the complex dialectic of conflict occurs. We have to go, as Blake would say, from physical war to mental war. And when this conflict occurs we can see we have to love our enemies in a Christian sense. In the battle, if we have compassion for the antagonist, we know that we are all in a position of trying to make visible the truth, but that this visibility comes from the magnetic field and the iron filings, and it takes certain kinds of polarities.

It takes the north pole and the south pole. So, the truth is not in one individual against the institution. Truth emerges in the dialectical combat between individual and institution, and it is always the case that things begin with an imaginative innovation, and then they are institutionalized. Then other imaginative individuals within the institution have to leave, create a different kind of situation, that becomes an institution, and then the process goes on.

So I think the process of innovation and the achievement of values, because this is what we are really talking about, is coming

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through a more complex kind of dialectic where there is not a single ideology that is the truth.

This dialectic, in a sense, is an evolutionary one. We could not say that all epoch B'ers are good and all epoch A'ers are bad. We need relationships between energy and the process of innovation, and order, and the conservation of form. So that it is very much, as Dr. Salk has said, a "both/and," and not an "either/or." It is a kind of double-win sort of system.

It seems that we are, for the first time, in a position where change is becoming visible. We live in a culture of the consciousness of change. We can begin to see that our institutions are no longer viable, and this is creating a certain amount of demoralization with the elite in society. The people in the Harvard Business School are not confident they know how the economics of business on this planet is working. People in Yale Law School are not confident they understand how jurisprudence relates to Xerox copying machines, or genetic engineering, or amniocentesis, or anything you would want to pick on.

The people in the churches certainly are not confident they understand morality. Our institutions once contained a definition of civilization, and now they no longer do. So we live in one of these periods identified by Dr. Heilbroner as a transition between whole cultural epochs. We find ourselves like Romans in the fourth or fifth century, wondering how and what to do; whether to identify with the Visigoths or how to leap over from the collapse of Rome to the implementation of the new culture.

So there is a way in which cultural evolution is very rapidly at work in our institutions. And, those institutions simply cannot pass on the truth to the young because the institution is a structure that takes for granted the very big unknowns we want to call into question.

We tried an experiment by bringing together the best expertise we could in the universities. We had them give informed opinions to policymakers so that we could move away from the stupidity of an uninformed and unenlightened robber baron capitalistic democracy to something more civilized, more advanced, more literate, and more intellectual. We hoped that through a kind of marriage of the Manhattan project and government and corporation investment in higher education that the gross national product would go up and we could create modernization. We experimented with all sorts of things, but

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basically we tried to Americanize the planet and transplant a certain vision of the Truman and Acheson variety. And, all that is now in a stage of exhaustion.

The "green revolution" is probably the last gasp of the attempt to Americanize the planet. We did not try to pass out chocolate bars, but we did try to turn the Punjab into the American Midwest. We did create the situation that is turning it into an arid desert and lowering the water table, ruining the protein content of the grains, and wiping out the organic and generalized adaptability of village India, turning the country into a queue.

We are beginning to learn our mistake. Now some people never learn their mistakes, and they are exactly as Dr. Salk has identified. They will look at the pollution in the ocean and say, "It isn't there. We need to have growth, and to increase the GNP." Or they will do as one futurist did at a conference I attended in Expo '74, Anthony Weiner, the author, with Herman Kahn, of the book on the year 2000.[1] They will say that the planet can support a population of 20 billion people at an income of $20,000.00 each.

Now this is worse than astrology. Astrology is really a beautiful art compared with this kind of superstition. It is even worse than nonsense. But these are policymakers in the Hudson Institute who presumably are sitting at the right hand of emerging nations and trying to tell them what they should do to turn Brazil into a parking lot and the Punjab into the American Midwest. But, hopefully, that has now reached its limits of growth. We realize that we have to go back to the drawing board, and must rethink what reality is all about.

One of the most critical things to realize is that the idea of bringing together the authority of the educational system with government which would seem to be a way of raising the "dumb lumpen" proletariat up to an enlightened level, was good, but it had hidden evils. Just as a cure for epilepsy seems benign, but it also contains the idea of psychosurgery, the legal implications of which are enormous; so a lot of the implications of distrusting the citizenry and saying the teachers are enlightened but the parents are red-necks and therefore it is up to the school system to modernize and enlighten, that attitude now I think has also reached its limit. We can see that

[1] Herman Kahn and A. J. Weiner. *The Year 2000.* New York: The Macmillan Company, 1967.

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from the elementary school to the university. The state has used the educational system to increase its power, to reinforce the corporate structure, to move away from post-crisis management to a kind of pre-crisis control management. The state has used the school system as the distribution center for all the latest technologies of political manipulation, whether they are behavioral modification or tranquilizers, or aversive therapy in the California prisons. All these social institutions become one common institution that becomes the distribution center for the state, so that the school, which was once supposed to be putting muscle into the democracy of the Republic, really becomes the reaching fingers of the long arm of the state.

So, it seems absolutely essential now that authority be separated from power and that as in traditional societies the sage is not the emperor. If we look at the Old Testament, we can see that the powerful prophets were the ones who were outside the palace. The moving of authority out from its prophetic protected moral space into the palace is a mistake.

We need a cultural system where there are institutions that speak with an authority that has nothing to do with the power system of the post-industrial world. Since education is intimately wed to the corporate system it obviously cannot be the university or the school system. They are the servants of the state, and, therefore, the innovation and the attempt to create moral space and to separate authority from power has to come by moving outside these institutions. So, it is absolutely critical that culture be expanded, and that institutions be surrounded with a new mythology, with the radiance of myth and symbol as a way of carrying values and ideas, and that the fullness of culture be recognized as the way, in fact, most societies work.

So I am arguing for a pluralism of elites, a kind of recognition of the dialectic that no single individual, including me, has all the answers, and that there is no universal solution. This is what we were looking for in the days of liberalism, *the* answer, and it would be spread across the board in great numbers.

Now one of the illusions that I think is going, along with the liberal illusions of the green revolution, is the idea of the universal solution, something is only valuable to the degree that it can be written out at large in great numbers. Change comes through very, very small groups of individuals. The physics of the 20th century was,

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as you can see from Heisenberg's book *Physics and Beyond,*[2] created by the conversations of about a dozen geniuses back and forth among themselves, going on skiing holidays in the Alps. The very physics that has affected all of us is an incredibly elitist thing. Once we separate authority from power we can then begin to realize that not only are elites a good thing, but elites are absolutely critical for our survival. I am very happy with Dr. Salk's allusion about how tiny the DNA molecule is compared to the whole body. The allusion I have used before is that an enzyme may be very tiny, but an enzyme can affect the whole organism. Though elites may be tiny, they are extremely critical, and education is based upon elites. Now what we have to do, in a sense, is separate authority from power, redefine the nature of the educated human being, and with that new definition of the educated human being generate or allow to be generated a whole new cultural vision of man that is more adaptable and more adaptive for our future and for our survival than all the models we have had from middle management and institutional training and the GNP and employment and marketability and certification and all the rest of it.

I think there are things that can be done; they are very critical to our survival, and they are reversals of the modern world. They are a movement away from nationalism in the market system, to refer to the ideas that Dr. Heilbroner presented, and they are a movement toward a realization that the individual is the basic institution of society. If you are not important as an individual and you are just a unit, and you only have value to the degree that you are compressed in a great mass, either as an electorate or as a mass demonstration, then there is really no point in your voting, and no point in your getting in that mass demonstration, because you have no meaning to yourself.

We must realize that the individual is the means by which culture comes to a consciousness of itself, and is changed, and that Ireland ignorant of Yeats is Ireland ignorant of Ireland, or America ignorant of Faulkner is America ignorant of itself.

As an overview, I would like to pick up the idea that we are in a period of cultural evolution moving from epoch A to epoch B, and to relate this to Heilbroner's idea that we are in an era of transition, an age of darkness, and that we are seeing our civilizational structure

[2] Werner Heisenberg. *Physics and Beyond: Encounters and Conversations.* New York: Harper & Row, Publishers, 1971.

possibly collapse. I would generalize that idea to say that what we are seeing is the collapse of industrial society and the market system and the contradictions of that system, and the institutional forces that have been related to industrial society. Something new is coming in, and nothing larger than a cultural transformation is really adequate. The difficulties with the way we have been trained and instructed and educated are that they assume one definition of culture, and it is not the only one.

I would like to take a more anthropological approach, but I do not want to be theoretical and abstract, but rather precise and come down to what we can do as educators, and what is to be done, and how theory has turned into practice.

I am not going to present the formula of an institution, but a description of a cultural strategy. I am more in favor of cultural strategies than institutions. Cultural strategies live and die organically. Institutions are organisms that survive their death, and this is unfortunate. We have many churches in the United States that have endowments in hundreds of millions of dollars, but no people in the pews. So I think institutions should not survive their death. They should not have the fear of that death; it is a very natural and organic process.

A Model of a Cultural Strategy

I am going to present a model of a cultural strategy. It is not a universal solution. I am not trying to overgeneralize it, but I am trying to say that I believe it is more relevant to the transition from a post-industrial society to a planetary culture. It is an expression of societal forces that are already at work, that certainly I did not invent or create.

It is a model that is capable of duplication, not in a mass-produced way, but in a more innovative way, where you get re-creation. When someone writes a novel you don't mass produce the novel at one level. You have the novel stimulating other writers to create their own novels. So it becomes a very rich tradition.

I do think that the implications of new technology are in this sense moving toward the possibilities of free-form, non-institutional, more organic and anarchic systems than the old models of industrial society. So I am going to present a brief prospectus of Lindisfarne

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as the model for educational innovation. I do not think this is the solution, but I think of many possible strategies it is a very sensible one.

It is called Lindisfarne, Education for a Planetary Culture. I am contrasting it with post-industrial international civilization, Tokyo, London, Paris, New York, with the interlocking corporate systems of government, education, and business. Planetary culture is the next culture at a quantum leap. It is not a continuous evolution it is a quantum leap. So there is a disjunction between these two systems. I am now saying that international civilization has reached its limits of growth; something new is coming in, epoch B, conscious cultural evolution of man. This identifies planetary culture.

The Lindisfarne Association in Southhampton, Long Island, is one of the first steps in the institutional decentralization of religion and education in America. Convinced that the new planetary culture and the new informational technology made churches, public school systems, and large bureaucratic universities insufficient, the founders of Lindisfarne have set up an educational community in which people of all ages can work and study together in a culture oriented toward individual spiritual growth and societal transformation.

We describe the new culture as planetary rather than international or post-industrial, because these terms describe political structures, national cultures, and corporate systems. International post-industrial civilization is expressed by the corporate systems that interlock business, government, and education. It is a culture based on urbanization and nationalism in which man tries to surround nature with technology.

The cultural vehicles of post-industrial civilization are the megalopolis and the multinational corporation. But the vehicles of the new planetary culture are at once smaller than cities and larger in frame of reference than multinational corporations. With the small, decentralized community as figure, and the planet as ground, the identification of a new particle comes from the realization of a new whole.

Medieval man dwelled in a village, but lived in Christendom, the figure-ground relationship of the previous civilization. So now planetary man may dwell in a community, but live in the planetary consciousness of a new heaven and a new earth; so it is Findhorn-Planet, Lindisfarne-Planet, Auroville-Planet, Tassajara-Planet, New

Alchemist-Planet. It is not New Alchemist, Massachusetts, or New Alchemist, U.S.A. It is a very different relationship of identification.

These new planetary villages are not old-style Utopian communities that shut themselves away from the world, but centers for the radiation of a new culture. They differ radically from what you would associate with the Utopian experiments in the 19th century in America like New Harmony and Oneida.

The Utopian community closes in upon itself to await the end of the world. The planetary community opens outward with other groups around the world to effect an evolutionary transformation of human culture. Lindisfarne itself is working with a group in Scotland, a group of scientists in Germany, a Yogic city in India, and a Zen community and farm in California. We are a web that goes around the earth.

Planetary culture is best defined in terms of anomalies, for anomalies express the limits to the categories of the old paradigm. Here I am using the ideas of Thomas Kuhn in his important book, *The Structure of Scientific Revolutions*.

Planetary culture is neither world-denying mysticism nor world-destroying materialism. It is a Pythagorean synthesis of science, religion, and art, which is of course what Whitehead and Teilhard de Chardin were working for. Everything that rises must converge, and we are now in an era of reconsolidation; science, religion, and art are coming together.

It is spiritual ecstacy *and* political economy, pre-industrial magic *and* post-industrial technology, myth *and* history. In short, it is an embodiment of transcendence. In any embodiment there are always two parents. The parents of the modern world were the Protestant ethic and the spirit of industrial capitalism. One child of that marriage was Benjamin Franklin.

The parents of the new age are mysticism and science, and a new age Benjamin Franklin is seen in Buckminster Fuller. (Just think of the *Autobiography of Benjamin Franklin* and all the qualities of Franklin, and then look at Bucky in that light and you will see the way in which he is both a continuity and very much a change of the old pattern.)

But there are other offspring from the wedding of mysticism and science. The astronaut Russell Schweikert does transcendental meditation. The architect Paolo Soleri is a follower of the mystic

Teilhard de Chardin. The composer Karlheinz Stockhausen, who is the world's leading composer, I think, is a follower of an Indian guru.

The Lindisfarne Association is designed to be another expression of this marriage of mystical religion and Pythagorean science. Lindisfarne is an expression of the conviction that cultural transformations are more effective than violent revolutions in bettering the conditions of civilization. The Crusades were failures, but the Renaissance was a success. The Association, with its affiliated members in Scotland, Germany, India, and California, is established to serve as a cultural center for the new planetary renaissance and not as a political tool for the attackers or defenders of industrial society.

(State capitalism and state socialism are pretty much the same reality and the same world view, and it is not far out enough.)

Like the first historical Lindisfarne of 635 A.D., the Association is more of a strategy than a permanent institution. After Lindisfarne had Christianized England it was destroyed by the Vikings, but by the time it was destroyed it had done its work. Lindisfarne took the old Greco-Roman civilization, compressed it, miniaturized it, turned it into a curriculum and a content, surrounded it with a larger vision of the new civilization, Christendom, and created the seeds of what became Oxford and Cambridge, though of course it did not live to see Oxford and Cambridge.

As a center it was extremely important in the history of the West, and it was also the center for the very mystical non-organizational kind of Christianity that was the Celtic church, as opposed to the Roman church. We are again emphasizing our identification with mystical Christianity, rather than the familiar church that I was raised in and that you all are familiar with as well.

Once our institutions contained a definition of civilization, and in those days we could go to the church to find holiness, the university to find wisdom, the corporation to find wealth, and the army to find glory. What is visible now in society's institutions is the past. What is invisible now to society, but experienced by individuals in consciousness, is the planetary culture of the immediate future.

As we look up at the stars we do not see the light of the present, but the past. Similarly, as we look out at the buildings of Manhattan we do not see the lights of the present, but the past. The whole cultural movement that began in the Reformation has reached its limits in the New Yorks and Los Angeleses of the modern world.

That movement is now finishing, and a whole new cultural movement is beginning.

The decentralization of American culture has just begun. In the 19th century most people hated what Karl Marx called "the idiocy of rural life," and hoped to escape their villages and small towns to go to the big city. In the age of civilization the city—civitas—was where it was at. Now, in the age of what Kenneth Boulding calls post-civilization, the cities are becoming the most uncivilized places of all. But now, thanks to the new planetary culture, one can return to the country without becoming its prisoner.

Dialectic Between Center and Periphery

The dialectic of civilization is a dialectic between center and periphery. In the new planetization it is the change into a force field situation, the noosphere of Teilhard de Chardin, where in the words of the mystic Nicholas of Cusa, the center is everywhere and the circumference is nowhere. It is a totally different kind of space, a different consciousness of space, which, with mystics, generates a different consciousness of time.

Jane Jacobs has explained, in *The Economy of Cities,* how cities spin off innovation to the countryside where there is more space open for experimentation. Eighteenth century neoclassical London spun off its industrial energies to Manchester and Birmingham. Now individuals are leaving urban universities for spaces more open for the restructuring of human society. We are going back to the structure of the preindustrial community, back to the preindustrial village, and giving it a wholly new content, though it is not just a repetition. History is not going in circles. It is going in spirals. You spiral round to the position you were in before, but you are one plane up, so you reachieve the structure with a wholly novel content.

In the preindustrial village children, women, and old people were economically important members of the community. Children worked on the farm. Women engaged in cottage industries. And old people performed various skilled crafts. In the shift to an urbanized industrial society, all this was changed. Since children could not work in factories as harmlessly as they had worked on the farms, they were collectivized in schools. You may credit Ivan Illich with some of the ideas about schools and factories, but if you actually look at

Hard Times by Dickens, you will see the realization that the factory and the school were related to one another came with the rise of industrial civilization and was expressed by Dickens in about 1854.

Since industrialization had required intense specialization, the kind of generalized woman who could tend her baby and her loom became a misfit. The woman in cottage industries would nurse her baby, put it down in the crib, and then go back to her hand loom. The jobber would come by and pick up her goods to take to the market. When that was considered a sloppy way of doing things, women were collectivized into factories and we moved away from generalized adaptability, which, as Dr. Salk will tell you, is the secret to evolution, to over-specialization in a narrow ecological niche. We put women into a narrow ecological niche, reduced their generalized adaptability, and their evolutionary power, and turned them into functionaries in the system. Now we are reaching the time for a change.

In industrial society women became isolated from cottage industries and were collectivized in the factories. In advanced industrial societies women were eliminated from the productive sector and isolated in the suburbs. Men became functionaries defined by a specialization which gave them their whole identity. Daddy is a lawyer, and Daddy has no time to be Daddy, and so his job gives him his whole identity. Once Daddy retires he is thrown away, and he is a functionary. He does not know what to do with himself, so he often dies of a heart attack in the year after he retires.

Old people were conveniently eliminated from the consumption-oriented nuclear family house, a house which had room for two cars and numerous appliances, but not grandparents. We could also say a high energy consumption house. If the energy crisis is teaching us anything it is saying we have reached the limits to growth of suburbia and the split level, and everything that means; the end of suburban schools, the end of Daddy as the productive breadwinner and Mommy as the suburban housewife driving the kids to tap dance and ballet, the end of that high energy consumption.

So it is a really massive change of social structure, not just simply the reform of the curriculum within the school system.

Robbed of the extended family with its range of multiple identities, the suburban child grew up with the nuclear family, a bureaucratic school system run by the state, and artificial media providing the main source of sensory stimulation and intellectual

growth. Through the combined power of government and education, post-industrial society almost became what Goffman calls a total institution.

The apology for power in this total institution was expressed in American behavioral science. What laissez-faire economics was to industrial society, behavioral science was to post-industrial society. From behavioral modification in schools and prisons to tranquilizers for hyperactive children in kindergartens and depressed people in nursing homes, the social planners tried to surround human culture with behavioral management.

Social planning is linear, but culture moves through a more complex phenomenology of opposites. Urbanization leads to juvenile delinquency and teenage gangs. Suburbanization often leads to drug culture. In each case there is an attempt to right an unbalanced situation. The teenage gang makes up for the lack of personal identity and small group loyalties in the city. Drug culture makes up for the lack of a stimulating and diverse environment in the suburb.

In a culture where one is institutionalized all his life there is no other space open but mental space, and so the school child smokes pot, the housewife takes tranquilizers, and the working husband drinks. The social planners try to preserve post-industrial society by creating problem-solving bureaucracies that provide jobs for the cultural managers they have trained. This is the biggest contradiction we have to face as educators: how we are immediately co-opted into not solving problems, but providing jobs for problem solvers.

The Peace Corps does not help the Third World, but only gives travel opportunities to the middle-class, college educated young. Social work, psychiatry, and education do not solve problems, but simply provide employment for problem solvers.

Form and Content of a New Culture

Lindisfarne does not try to solve the problems of drug abuse, the alienation of women, the rejection of the aged, or the failure of educational institutions. It tries to eliminate the cultural form of the human community in which these problems exist. It would be easier for Lindisfarne to be a Pythagorean think tank in which scholars drive to work while their wives stay home and their children go off to school. But such a research institute would be merely talking about

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a new content for an old culture, instead of embodying the form and content of a new one.

It would be easier for Lindisfarne to fill itself up with graduate students and post-doctoral fellows who have all the impressive credentials of the old culture, but by working with young people, older people, and housewives, it is demonstrating that the spiritual foundations of the new age are not necessarily based on the teachings of Harvard and M.I.T.

In many ways we feel that those who have failed to relate to post-industrial society are often, paradoxically enough, uniquely open to enculturation in the newly emerging planetary culture.

In these new planetary communities women, children, and old people once again become economically important members of the culture. Husbands and wives work together and so the polarization between breadwinner and housewife is eliminated. Children take part in communal labor, and where possible, take classes along with the adults, so you get a 7-year-old and a 70-year-old taking the same course.

How can one teach the value of work and teach the work ethic?

I think that is an important question; it brings up the difference between culture and education. I don't think you can teach or instruct the value of the work ethic. I think that culture instructs.

Hunting societies do not teach people how to be hunters. There are no schools for hunting. The culture itself is the school. At Lindisfarne we are an institute run communally in kibbutz fashion. We started this out with absolutely no money, and we are just doing it out of scratch and faith and the usual kind of communal sensibility. That means that if we don't winterize the cabins we're going to be cold. That means if we don't sweep the floors we're going to be dirty. That means if we don't wash the dishes our health is going to be in bad shape. So every one of us works. There's no Mandarin class. All the directors and the fellows and everyone partake in communal labor from one o'clock to three o'clock in the afternoon. During this time, the community breaks up and forms into task forces to take care of the place.

It is not a question of how we teach the value of work. The value of work is part of our very existence, so that work becomes part of a content, but not the idiocy of rural life and the drudgery of the 19th century farm. We're a post-technological culture in which work exists as a sacramental work of art. This is another example of Marshall McLuhan's idea that the sloughed off environment becomes a work of art in the new invisible environment, so that when you move into industrial society nature becomes a park.

In this particular case we are not returning to Pepperidge country farms and the fantasy of the 19th century. I know that our relatives and our ancestors hated that life of drudgery. But labor is going back to the Latin sense of *labore orare est* to work is to pray, and there is a resacralization of work. As you know in the post-industrial society work is meaningless, and everything is make-work. You give your kid an allowance and hope he gets a paper route, or you try to find make-work that he can do in the school. Let the culture teach him how to repair a shoe. Where instead of having courses in shoemaking, you use the culture itself. This is a very different approach, as in the Parkway schools. We are not instructing people, we are embodying a cultural form, and the cultural form is itself the embodiment of the values that we are trying to teach.

In this sense I think children learn through one's being, not through one's saying. If the students in a university feel it is a

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contradiction within the system that the Marxist professor who is screaming for revolution has a salary of $25,000.00 a year, they're not going to pay any attention to him. They know that no matter what he says, he's basically a civil servant of a state capitalist system, not a Marxist revolutionary.

If a child feels that his teacher does not have confidence, that there's not that radiant center of integrity that, "I am a master of a field that is difficult to manage, and I have worked hard to do it; I am not a 'resource person.' I am a teacher, and you're an apprentice." If there isn't that confidence the student will drop out of the school and find a master, whether it's a master of Kung Fu or a master of guitar. So we shouldn't kid ourselves about elites.

Culture works by elites and the very young who are attacking elites in one sense are attacking them because they don't believe that they are truly elite. But if they find another elite outside the school then they really will sit at their feet and take incredible amounts of orders. Look at the way the young drop out of schools and they go sit at the feet of gurus. Can you imagine anything more authoritarian than a guru from the caste system of India?

So our children take part in communal labor, and where possible take classes along with the adults. We have a different sense of the human community. We run from infants in arms all the way up to 70-year-old people. And older people become the very heart of the community and one of its most important assets. Our fellow in science is a beautiful Pythagorean ultrasonics physicist. He has 100 patents to his name in ultrasonics inventions, and teaches a course in mysticism and science. The children climb up on his lap and call him Louie and he tells them stories at story time. He makes jewelry and has built an incredible wind harp that is a symbolic form out of the *I Ching*. The presence of this man in the community is priceless. He is a retired physicist, by ordinary definition he's over the hill and he should just hang around and wait benignly for death. Yet without him the community would be utterly impoverished.

Modern medicine has extended the period of productivity well into the 70's. Thus, there becomes available to a community like Lindisfarne an enormous talent pool of retired people. When one remembers that Whitehead wrote his major works in philosophy after his retirement from the University of London, one can see that both

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people and Lindisfarne stand to gain enormously from the new patterning of culture.

Lindisfarne is not training people for functions in industrial society, but is fostering the growth of a new culture. It is concerned with Teilhard de Chardin's noosphere literally. The way to effect the most profound cultural transformation is not to expend one's energies in attacking institutions or industrial society as a whole. You don't get rid of agrarian society by shooting horses, you invent automobiles. You don't get rid of automotive society by bombing refineries, you create new forms of human culture.

That kind of negative conflict inevitably turns one into his own enemy. The revolutionary becomes identical to the same kind of bureaucrat he is fighting against. State capitalism and state socialism are the same. The manager of the multinational corporation and the manager of terror are the same kind of person, both thinking in an inhuman calculus. Whether the terrorist is calculating the effect of machine-gunning people in an airport, or the multinational corporation manager is calculating unemployment, triage, or fuel loss, they are of the same mind. You are not going to get a change if you just deal with this merely political process. Politics is part of culture, and politics must be generated from culture, which is saying that it is related to the old morality.

The way to effect the most profound cultural transformation is not to expend one's energies in attacking institutions or industrial society as a whole, but to surround the demoralized society with a new radiant envelopment of symbols, a new field of consciousness, a new mythology. In the whole psychic orchestration of consciousness in the noosphere, the very young and the very old are as important as the generation in power. One group may be in power, but all are in consciousness, and it is consciousness which creates culture.

But the young and the old are not the only ones who are not interested in industrial job training. Successful people in middle age who are bored with making it in careers also become interested in how to be, and not simply what to do. For them Lindisfarne becomes a place where they can rethink the changing direction of their lives. For college graduates Lindisfarne is a place of work and contemplation for a year or less, before entering programs of specialization in graduate school. For undergraduates or high school age students

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Lindisfarne can be a place for intellectual study or communal life and individual spiritual practice.

There are many spiritual communities in America today, so Lindisfarne's concern with individual spiritual growth is not unique. The community is a contemplative community and everyone there is practicing some particular spiritual discipline of meditation whether it is Buddhism, or Yoga, or mystical Judaism, or contemplative Christianity.

What is unique to Lindisfarne is the attempt to work on the intellectual foundations of the new age. In many spiritual communities the intellect is looked upon as a divisive force, and intellectual culture as a form of egoistic attachment to illusion or maya. At Lindisfarne the intellect is not rejected, but lifted up. When the analytic mind is quieted through meditation, the higher mind, or creative intuition, flows into consciousness.

Artists and scientists have stumbled, by accident, into the higher creative consciousness through the power of a dream, as in the case of Niels Bohr and his dream of the atom, or through the power of a fevered vision, as in the case of Alfred Russel Wallace and the idea of evolution.

Through contemplative practice science and art rise and converge into a single mythos, a case of Wissenkunst rather than Wissenschaft. Wissenschaft is a German word for science, so I'm fabricating another word for art, for the process of knowing becoming an art form itself. We're dealing with knowing in the world of information; we no longer live in a world of matter. Therefore, as you sculpt information into physiognomic and recognizable forms you are sculpting information into forms of consciousness and you're really working analogously to an artistic function, so this is a case of Wissenkunst, to know as art.

This new cultural mythos is at the heart of Lindisfarne's attempt to create an educational curriculum that expresses a new image of nature, self, and society. At a university the program of residence is instruction in the informational disciplines of the sciences and the humanities. At Lindisfarne the program of residence is instruction in the transformational disciplines of Yoga, Buddhism, as well as the esoteric schools of our own Judaic and Christian traditions.

Although the esoteric techniques of contemplation of the great universal religions are affirmed at Lindisfarne, there is no attempt to synthesize these techniques into one abstract and rootless spiritual

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technology. One individual at Lindisfarne may be practicing Zazen, another the Lectura Divina of the Benedictines. Whichever path the individual chooses to take to the summit, we feel it is literally pointless to argue over who had the best view on the way up.

The lack of a guru and a single teaching is at once Lindisfarne's weakness and its strength. Those who are strong enough to accept our weakness, but weak enough to partake of our strength, are the ones who will find Lindisfarne to be the right cultural center for them.

In another age a Moses could lead the children of Israel into the promised land where they could build another Egypt all over again. But the new age is not expressed in either the charismatic individual or the routine institution. Civilization has been going around in those Weberian cycles long enough.

The new age is expressed in the spiritual fellowship of fully individual men and women who look around them and see that what is unique to them is universal to human culture.

The general structure of Lindisfarne is about a dozen teaching fellows, four in the religious areas. We will probably move to five. The others are in the arts and the sciences, and we are working through the contemplative with the Whitehead and Teilhard de Chardin vision of the integration of science, religion, and art into new symbolic forms of science.

Our image of science is Pythagorean, not Archimedean. Archimedes was a guy who worked for the state and created the technology to defend Syracuse under attack, and that seems to me the model of Rand Corporation. Pythagorus was the godlike man who discovered that all was "number" and based on mathematics, and there was a relationship between the length of the string and the pitch of the note. He was much more a contemplative and religious kind of figure and sage.

There is a book on science written by the molecular biologist Gunther Stent in which he argues that we have reached the end of civilization in history and science and art. He tries to show through the development of genetic thought how it has gone from a charismatic innovative phase to a sterile and academic phase, and that it is all over. In the process of talking about the end of the age of science and the end of civilization he tosses out a similarity between Francis Crick's table of the nucleotides which form a table of 64, the

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AGCT of the basic DNA code, and the 64 hexagrams of the Chinese *I Ching*.

Now the *I Ching*, a major book in the counterculture which has all the young tossing coins or yarrow stalks, is the oldest book on the planet. It goes back to about 2,000 B.C. It is the basic structure of information and a modeling of consciousness and time, and is, if you read Carl Jung's introduction into it, rather a sophisticated document and not just a piece of oracle superstition.

The fact that the basic book of information in Chinese culture is isomorphic, or similar in form, to the basic structure of information within the cells of the human body, is precisely the kind of correspondences of form that a Pythagorean scientist would be interested in. He's interested in symbolic form and the relationship to music and mathematics and symbolic form in the architecture of a dandelion, how it is like Bucky Fuller's geodesic dome. He's interested in the kind of patterning that is seen all through nature.

While I was teaching at M.I.T. I was very disturbed that the history of science was being falsified. We were raising a generation to think that science was identifiable with genetic engineering and psychosurgery and manipulation and power and greed and a sort of Faustian dominance of nature. M.I.T., in its lust to make a buck and its lust to industrialize science, had really distorted and falsified what science was all about. I had hoped, at M.I.T., to create a center for science and mysticism, a counterfoil institution within M.I.T. to try to redirect the balance as an educational venture with a mind to the ecological crisis. I felt that the seeds of the ecological crisis were in the engineer's consciousness of nature, that nature was dead and he could work his will on it.

Of course, it was utterly silly and stupid of me. There was no possibility for a reform within that Vatican of engineering. It was stupidity to try to do something like that in the 60's, when M.I.T. was moving toward applying science to behavioral science. Just as once it had applied science to engineering, it was now moving from engineering to social engineering, and the management of a technological society. There was just no chance at all of doing anything as far out as combining science and mysticism there.

My point, therefore, is that many times it is a waste of energies to try to innovate from within, to try to reform the system. Those energies are better spent outside the system creating in a pure and free

form the counterfoil institution. If we look at innovation through history, this has been the case, even of people in institutions. The innovative individual has always been a marginal personality who somehow or other is protected by other marginal personalities from the institution itself. He generally gets in conflict with the bureaucracy, or the theocracy of the priests who are trying to maintain the old paradigm.

It is much more efficacious to change the cultural vehicle and create a multi-generational education community that is based on the traditional kind of kibbutz values and use that as an agency for modeling a decentralized community of low energy use, a different form of political economy that is precisely relevant to an era of scarcity and shortages and the enormous transformation of the next 10 to 15 years.

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Contributors

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Willard Wirtz was Secretary of Labor in the cabinets of President Kennedy and President Johnson (1963-1969). Previously he was a teacher of law at the University of Iowa and Northwestern University, a labor arbitrator, and a practicing lawyer. He is currently President of The National Manpower Institute; Chairman of the Board of Curriculum Development Associates, Inc.; and Trustee of Amherst College. His book, *Labor and the Public Interest*, was published in 1963.

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The text of this booklet is set in Helvetica Light, a typeface designed in Switzerland by Mas Miedinger. Display lines are set in Helvetica and Korinna. The paper used is Hammermill Hy*O*Lite.
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